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## Table of Contents

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| ORIGINAL ARTICLES—  | PAGE. | UNIVERSITY INTELLIGENCE—  | PAGE. |
|---|-------|---|-------|
| "The Nervous Child", by ALFRED W. CAMPBELL, M.D. . . . .                            | 535   | Jubilee of the Sydney Medical School . . . .                          | 562   |
| "The Psychopathic Child", by W. S. DAWSON, M.D. . . . .                             | 538   | <b>CORRESPONDENCE—</b>  |       |
| "Blood Grouping in Proof of Paternity", by J. V. DUNIG, M.B. . . . .                | 545   | Medical Benevolence . . . . .   | 565   |
| "Trauma and Epithelioma", by H. M. MORAN, M.B., Ch.M., F.R.C.S., F.R.A.C.S. . . . . | 547   | Herpes Recurrens . . . . .  | 565   |
| <b>REPORTS OF CASES—</b>  |       | Use of Iodine in Thyreotoxicosis . . . . .                            | 565   |
| "Spontaneous Subarachnoid Hemorrhage", by RICHMOND JEREMY, M.B., M.R.C.P. . . . .   | 551   | Anæsthesia with Prenarcosis by Morphine and Paraldehyde . . . . .     | 566   |
| "Case of Compression Fracture of the Spine", by H. SKIPTON STACY, M.D. . . . .      | 552   | The Listerian Oration . . . . .                                       | 566   |
| <b>REVIEWS—</b>   |       | The First Heart Sound . . . . .                                       | 566   |
| The Action of Homogeneous X Radiation . . . .                                       | 553   | Shall the Tonsil be Our Totem? . . . .                                | 566   |
| Deformity Due to Posture . . . . .  | 554   | <b>CONGRESS NOTES—</b>  |       |
| <b>LEADING ARTICLES—</b>  |       | Australasian Medical Congress (British Medical Association) . . . . . | 567   |
| Medical Benevolence . . . . .   | 555   | <b>OBITUARY—</b>  |       |
| <b>CURRENT COMMENT—</b>   |       | Robert John Fullerton . . . . .                                       | 567   |
| Lichen Urticatus . . . . .  | 556   | <b>NEW MEDICAMENTS, APPARATUS, ETC.—</b>                              |       |
| Protection of the Peritoneum against Infection . . . .                              | 557   | The Percival "Gull" Aeroplane . . . . .                               | 567   |
| <b>ABSTRACTS FROM CURRENT MEDICAL LITERATURE—</b>                                   |       | <b>BOOKS RECEIVED . . . . .</b>                                       | 568   |
| Gynaecology . . . . .   | 558   | <b>DIARY FOR THE MONTH . . . . .</b>                                  | 568   |
| Obstetrics . . . . .  | 559   | <b>MEDICAL APPOINTMENTS . . . . .</b>                                 | 568   |
| <b>BRITISH MEDICAL ASSOCIATION NEWS—</b>  |       | <b>MEDICAL APPOINTMENTS VACANT, ETC. . . . .</b>                      | 568   |
| Scientific . . . . .  | 560   | <b>MEDICAL APPOINTMENTS: IMPORTANT NOTICE</b>                         | 568   |
| Nominations and Elections . . . . .   | 562   | <b>EDITORIAL NOTICES . . . . .</b>                                    | 568   |

### THE NERVOUS CHILD:

By ALFRED W. CAMPBELL, M.D.,

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THE subject set down for discussion this evening, "the nervous child", is one of much complexity and might be followed along various lines. There are many kinds of nervous children and, according as our interest lies in diagnosis, in ætiology, in mental hygiene, or in education, discipline and treatment, many ways of considering them. The way I shall take is that trodden by the physician interested in nervous affections and mainly concerns diagnosis. I shall try to present a brief commentary on current thought concerning some of the signs which seem to stamp the nervous child.

<sup>1</sup>Read at a meeting of the New South Wales Branch of the British Medical Association on August 21, 1933.

To meet description these signs may be divided into those indicative of neurosis and psychosis respectively. I shall first take signs of neurosis, and at the outset need hardly remind you that the child is a creature of undeveloped instincts, unbridled emotions and imitative tendencies; therefore, if it be allowed to follow its own inclinations and if, in addition, it be congenitally loaded with a neuropathic bias, small wonder that it is liable to a number of disorderly and faulty ways.

#### Objectionable Habits.

I may first mention, and will do little more than mention, objectionable habits. These are certainly associable with the "nervous child" and comprise such well-known practices as nail-biting, thumb and tongue-sucking, dirt-eating and masturbation. They are all alike in being a source of worry to mothers, nurses and medical advisers, and all at least suggest future trouble.

Selectively taking masturbation, perhaps the most disturbing of these habits, and one which we see even in small infants, we are frequently asked by anxious parents as to what injurious after-effects it may lead, insanity being the main dread. I think the answer to be reasonable that the practice is nothing more than a natural expression or reflex of perhaps the strongest of all instincts, and may lead to no harm, provided the child be otherwise normal, in particular not mentally deficient, and be checked, trained and treated on common sense lines.

Touching the ætiology of these habits, I cannot refrain from referring to the fascinating concept of Pawlov that they denote "conditioned reflexes", all habits being mechanically nothing but reflex discharges.

#### States of Hyperkinesia.

There are various functional disorders of movement to be taken as characters of the nervous child, and as important in practice, because while they may appear to be trifling, they may also signalize more serious after trouble.

In one class they consist of single and simple stereotyped movements, such as blinking of the eyes, shrugging of the shoulders, or twisting of the head and neck, movements to which the term tic or habit spasm has been attached. It is a disconcerting thought that a systematized tic such as this is an imperative movement, the motor analogue of an imperative idea or obsession, and I leave it to you to reflect whether the child so affected is liable later in life to be swayed by obsessions and actually to become the subject of a compulsion psychosis. I think not, at any rate not to any alarming degree.

In another class we get what is spoken of as the "fidgety child". The child in whom the movements are irregular, involving various groups of muscles, and what is more important, perhaps simulating chorea. Indeed in practice it is highly necessary not to confuse these movements with chorea, because the treatment of the two is entirely opposed and even the prognosis is different. Isolation and sedative drugs, which may be our mainstay in chorea, have no place in the treatment of the "fidgety child". To isolate, even to keep from school, in such case, is only to make things worse. This child must be examined and treated on psychiatric lines. And we must beware of saying in an airy way: "He will grow out of his trouble." A child exhibiting general fidgetiness may be taken as having some fault in mental adjustment, perhaps the outcome of inherited defect, and asks for a cautious prognosis.

#### Disturbances of Sleep.

Most of us who have to deal with sick children know that ordinary sleeplessness, as well as night terrors and somnambulism, are not common in infancy and early childhood, but in children of school age are frequent and exceedingly troublesome complaints.

The inquiring practitioner may find that the disturbance is due, not to physical cause, such as adenoids, urticaria or dyspepsia, but to some

inherent nervous sensitiveness or maladjustment, and one which in the case of the school child comes out not so much on account of excessive work as of conflict between child and teacher. Accordingly each case must be investigated and treatment adjusted to cause. Obviously, in the face of some bodily or other easily discovered ailment, treatment will simply consist of its removal. But if there be indication of some neurosis the call will be for tactful management, intelligent explanations to the parent and encouraging instructions to the child. The story is an old one, that a child on being told that God would be with him in the dark, naively asked that God be taken away and the candle left. The difference between inducing sleep and treating sleeplessness, one as easy as the other is hard, must not be forgotten.

#### Disturbances of Speech.

Stammering is an affliction which by custom we associate with the nervous child, but it is a moot point whether we are altogether right in so doing. I would ask you to think first how many stammering children you have seen in whom signs of a neurosis were positively present when they began to stammer; and secondly of the plausible inference that it is not the primary neurosis, but the reactions arising out of the initial explosion, namely, the resultant anxiety and fears and all that keeps stammering alive, which are of importance. But in such case the question will immediately arise: What, then, causes the initial explosion? In my opinion no satisfactory answer is forthcoming. We have been told that it is the suppression of left-handedness and the coercion of right-handedness, actually an artificial transposition of function from one cerebral hemisphere to the other. And I must confess that some of the most stubborn examples of stammering I have seen have been in left-handed individuals. Unfortunately, however, this does not always hold, because we often see stammering in right-handed children; moreover, the hypothesis does not explain why boys stammer more often than girls, which is a fact. I will only add that the problem is full of difficulty and controversy and still far from solution.

Idioglossia is another extraordinary speech disturbance wherein pronunciation of words is so distorted that the subject appears to be talking a language of his own, and so he is. In one of my exemplifying cases "dar mo beedee pa" was intended for "give me a biscuit please". I incline to regard idioglossia as a sign of inherent mental instability, and yet I must admit that if children so afflicted are weak-minded, they are by no means weak-willed, because they are astonishingly successful in forcing their playmates and their parents to understand their language. Eventually they acquire normal speech and perhaps a normal mind.

Partial mutism is a defect which resembles idioglossia, but has a more definite background of inherent stubbornness (negativism). We see it at the age of four to six years, and subjects are peculiar in being able, but unwilling, to speak; they

are content to obtain their wants by sign language. In all other respects they may be normal, and when removed from home surroundings and compelled by circumstance to use their tongues they do so.

#### Nocturnal Enuresis.

Nocturnal enuresis in its relation to the nervous child is a fault concerning which we may have misapprehensions.

It may be accepted as a general rule that sphincteric control is established by the end of the third year of life. If, after this period, a child is habitually incontinent, we may reasonably suspect that mental deficiency will become the final diagnosis. Here, however, we are not concerned with the mentally deficient. More important and more vexatious are cases of incontinence affecting children of average intelligence, well over the age of discretion, having no trouble during waking hours, and yet occasionally, perhaps frequently, wetting their beds. To these the term nocturnal enuresis is properly applicable, and to clinch the definition it is essential to remember that the incontinence occurs only during sleep.

Much might be said concerning the aetiology and treatment of nocturnal enuresis, but I will merely submit two questions for your consideration. First, are we right in supposing that nocturnal enuresis is an attribute of the nervous child? Is it not the case that most of these sufferers are of the phlegmatic rather than of the nervous type, and that the main nervous defect present takes the form of an "inferiority complex" or sense of anxiety, and more, that this is not a primary, but a secondary defect, the result of unsuccessful treatment and perhaps of scolding and punishment?

Secondly, is it not the case that the affection is curable and that though the process of cure may entail trouble, it is more effective to employ tactful management and suggestion than drugs? A coin of the realm beside the bed may be more conducive to continence than bottles full of belladonna and ergot.

#### Major Neuroses.

Concerning major neuroses, exemplified by the three affections, migraine, neurasthenia and hysteria, it is of interest to note that in a hospital for sick children, like that at Camperdown, these affections are uncommon.

If a child complains of headache, we look for something more serious than migraine; against neurasthenia the child is rendered proof by its inherent vitality; and as to hysteria, at any rate in frank form, the fact is that it rarely appears before school age. Outbursts of passion and similar exhibitions of unbalanced behaviour in small children are not to be marked with the label hysteria. The stigmata or stamps of hysteria are essentially products of imitation (automimetic or heteromimetic); they are reserved for older children, especially girls approaching puberty; they commonly take the form of aphonia, catchy speech, choreiform movement and paralysis of limbs; and

among these it is a by-word that none is more difficult to diagnose than hysterical paralysis, unless one's eyes are open to the possibility.

#### Psychoses.

I shall now say a few words on what are regarded as psychoses in childhood, and here I realize that I approach a difficult subject, not only because signs of mental disturbance are so different from what they are in adult life, but because a multitude of writing, lay as well as medical, much of it discursive, has increased the volume of the subject to an unwieldy degree. To illustrate this I have only to refer you to discourses on the solitary child, the problem child, the difficult child, the delinquent child, and the child of siblings, not to mention all that has been set forth on the upbringing and education of nervous children. Indeed the subject is so extensive that I can only touch its fringe.

In medical practice, however, we see first and commonly what the lay parent describes as "the nervous child", by which he means an active-minded, easily excited, quick child, as contrasted with a phlegmatic child. On taking thought it becomes an open question whether we are to class this child as abnormal, and I think personally that, provided there is freedom from more definite signs of neurosis and psychosis, it is wrong to do so. So-called highly strung individuals, young and old, frequently possess strong strings.

Looking a little further we may see children who offer indications of more essential psychosis, or what is perhaps a more apt term, prepsychosis. Here I can only outline the signs and say that though they run into one another and find expression in many ways, they may on analysis be resolved into the three states of anxiety, obsession and negativism. As instancing the anxiety state, a child so affected may be obviously apprehensive and self-conscious, may lack decision, be slow to act and fearful of doing or saying the wrong thing, may, in short, carry a sense of inferiority and an aspect of general unhappiness. Secondly, to instance the state of obsession, or compulsion psychosis, the child may be the subject of morbid dreads, dread of the dark, of lifts, and so on. (Dreads, by the way, which may be suggested by the mother, just as the anaesthesia of hysteria may be suggested by the physician.) Or he may be impelled to handle certain objects or to utter strange sounds, or be in other ways swayed by compelling or imperative ideas. And, thirdly, to instance the state of negativism, the child may be in a general and morbid way resistive to training and moral suasion, inherently stubborn, heedless of correction and precept, passively unruly and even recklessly destructive. And concomitant with or consequent upon any or all of these three mental states we may find physical failings, such as sleeplessness, lack of appetite and loss of weight.

We are all familiar with examples of the weaknesses I have outlined, and when we look for the cause may see three main factors. In my experience a psychopathic hereditary taint stands foremost; next comes nutritional disturbance, which includes



exhausting illness, such as gastro-enteritis, as well as faulty feeding; and, thirdly, unwholesome environment, which may obtain in the houses of the rich, instanced by the solitary child, as well as those of the poor.

In the matter of prognosis an outstanding question for determination is to what extent these failings can be taken as prepsychoses forecasting the onset of major psychoses in later life, particularly *dementia præcox*, manic-depressive insanity and paranoia. My own thought is that the time is not ripe for a pronouncement and that it is best for the present to regard these affections as potentially curable and refrain from raising bogies.

In conclusion, I would say, however, that we must not look upon this problem of the future of the psychotic child as closed. There is still much work, much careful and extended observation ahead of the pædiatrician, and it must be the pædiatrician trained in psychiatry. In the case of the adult deranged mind lunacy laws have compelled profound special study, but in the case of the child, with its incompletely developed derangement, there has been no such force compelling exploration, consequently the field has been largely neglected.

#### THE PSYCHOPATHIC CHILD.<sup>1</sup>

By W. S. DAWSON, M.D.,

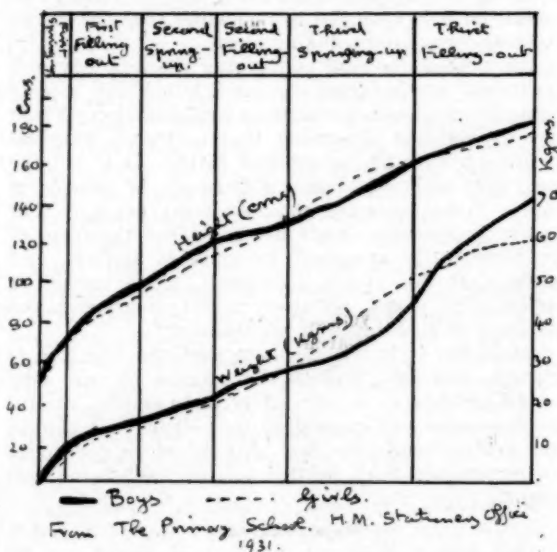
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THE introduction of the subject of the psychopathic child appears to be fully justified for three reasons. In the first place, attention to the nervous or psychological disorders of childhood is a logical extension of the preventive work already being carried out in other departments of medicine. Attention to the emotional life, to habit training, and in general to the life of external adjustment, should be added to the care of the life of internal relation, that is, bodily well being. Secondly, in so far as the nervous child may constitute an educational problem, the consideration of this subject seems singularly opportune at a time when the educational system of this State is under review. Indeed, in the Primary Syllabus for New South Wales (1922) it is stated that the "function of a school is to supply the circumstances and conditions most favourable to a child's growth". Thirdly, owing to the very wide interest which is being displayed in lay circles in the treatment of nervous manifestations in childhood, it behoves the medical profession to see that it is reasonably well equipped to deal with these conditions.

It is proposed in this paper to deal with some aspects of the psychology of childhood and thereafter to refer to some of the personality disorders which may be displayed during the first two decades of life.

It is important to remember the extremely rapid growth of cerebral tissues during the first few

years of life. At birth the infant has an amount of grey matter which is about the same as that of the adult anthropoid ape, with a supragranular layer of a depth about half that of the normal adult. The more primitive granular and infragranular layers have developed at birth to about three-quarters of their full extent. During the first few years the growth of the brain is rapid, and 60% of its fullest size is attained by the end of the second year. The brain reaches 90% of its full development by the end of the first decade. In a recent study<sup>(1)</sup> of physical and mental aspects of growth during school age, the whole process of growth has been divided into various stages, called "springing up" and "filling out" periods. General growth is rapid up to the time of birth, in fact it has been stated that if the child were to continue to grow for twenty years as rapidly as he does during the month before birth, he would equal the earth in mass. The first "filling out" period occurs between the ages of one and five. Between five and seven



there is again a relative increase in the rate of growth affecting the stature as well as the nervous tissues. There is a rapid increase in height, so that the child tends to become thin and loses the undifferentiated chubby aspect of infancy. During this period parents are apt to be worried over the apparent loss of weight. By the age of seven years the head has almost attained adult size. Growth becomes less rapid between the ages of seven and twelve, the second "filling out" period. This phase is regarded as a period of special importance for recovery from the effects of illnesses of infancy and early childhood, the effects of errors in diet and, indeed, from all conditions which have hindered normal development. One may emphasize here the importance of the correction of undesirable physical and mental habits. The third "springing up" period occurs between the ages of twelve and fifteen and

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on August 31, 1933.



is associated with the remarkable physical and mental changes of puberty. Finally, after the age of sixteen normal growth tends again to be less rapid and there occurs another phase of "filling out". Associated with rapid growth there is increased susceptibility on the part of the various tissues to external influences, shown, for example, in the lines of relatively denser substance laid down in the long bones and reduced growth during severe constitutional disturbances. Doubtless the brain is also liable to be affected, thereby suffering at least temporary impairment of its functions. Man matures more slowly than any other animal, but the longer period of helplessness and dependence is offset by the greater capacity to be modified by external influences and to be educated.

Although Freud and others have emphasized the importance of early influences in the formation of character and other aspects of the personality, we are only beginning to give adequate recognition to the impressionability of the child and therefore to the importance of the environmental influences which are brought to bear upon it. In an address delivered some years ago at the twentieth anniversary of Clark University, United States of America, Professor Jung said:

The concealed discord between parents, the secret worry, the repressed hidden state with its objective signs slowly but surely, though unconsciously, work their way into the child's mind, producing therein the same conditions and hence the same reaction to external stimuli. The father and mother impress deeply into the child's mind the sense of their personality; the more sensitive and mouldable the child the deeper is the impression. Thus even things that are never spoken about are reflected in the child.

It is true that temperamental differences may be noted from early years. Even amongst members of the same family parents may observe in infancy children who are alert, phlegmatic or labile in their emotional expression. The importance of innate constitutional factors is shown in the case of similar twins who tend to preserve a remarkable similarity in their mental characteristics, even when parted at an early age and brought up under different conditions. On the other hand, dissimilar twins who are brought up together may display marked differences. The processes of training and education (using the terms in a wide sense) involve essentially a progressive socialization, a failure of which may be manifested by neurosis or other variety of mental abnormality. Throughout life the individual has to achieve a compromise between his own desires, dependent in part on his psycho-physical constitution, including his intellectual and temperamental qualities, and what society will permit. Conflict, with its various mental symptoms, arises where no satisfactory agreement between self and society has been attained.

In the handling of the nervous disorders of childhood it is important to remember that the symptomatology tends to be somewhat different from that of neurosis in the adult. In fact, misunderstanding has arisen through the tendency to regard and to measure the child by adult standards. Neuroses in childhood are less easily defined than

in the adult. On the other hand, owing to the greater plasticity of the organism, habits are less fixed and therefore deviations from the normal are, on the whole, more easily modified and corrected than at a later age.

#### The Psychiatric Examination of Children.

As in other departments of psychiatry, treatment may be said to begin with the investigation of the individual case. One may therefore call attention to a few of the special points in the examination of the child which are of special interest to the psychiatrist in the assessment of the various factors which have contributed towards the mental abnormality. In the first place, one obtains a statement from the parent, guardian or school-master as to the disorder of conduct for which treatment is sought. Care should be taken that this information is not given in the child's hearing. One may then proceed to obtain a history of the child's development. In the assessment of intelligence considerable weight may be given to the history of mental development with reference to important landmarks on the road to maturity, as well as to the results of psychometric examination by the Binet and other tests.

For example, inquiry should be made concerning the ages at which the child began to sit erect and to creep along the floor (sixth month); attempted to stand and to make stepping movements (ninth month); stood unsupported and attempted to walk (first year); ran about and attempted to climb up chairs (eighteen months); began to name common objects and to carry out simple commands (two years). One must be content with general impressions in obtaining the history of such details from most parents of hospital patients. Standardized tests may be applied from the third year onwards. The place in the family may be of considerable importance. Perhaps more frequently the youngest, especially if he has been born a considerable interval after the child immediately his senior, and, of course, only children are more liable to receive special attention and to undergo the process of "spoiling". In these cases the period of dependence may be unduly prolonged and give rise to difficulties when the time of emancipation arrives. Some observations from *Punch* (March 25, 1931) are singularly pertinent:

The youngest one, and it's hardly fair,  
Has nothing that's new of her own to wear.

The eldest one is the one who's told  
That she's far too big and far too old  
To scuffle her shoes on the garden wall  
And flop and scrawl . . .  
And she's always told she should be the best.

. . . the middling one's so in between  
She has to shove.  
And she's always told, and it's rather flat,  
She's too old for this, and too young for that.

The only one's allowed to choose  
New frocks and shoes.  
And the only one's allowed to play  
In her own way.

It must always be remembered that the child is one of a group and that his emotional relationships towards his brothers and sisters, as well as towards his parents, may call for close attention.

Inquiries concerning health should contain reference to the common illnesses and injuries. These are frequently alleged as causes of nervous instability by parents, although most of the head injuries reported turn out on closer investigation to have been comparatively trivial. Some children, with a little encouragement, readily accept the suggestion of invalidism for the sake of the privileges which illness often brings. One may therefore keep alive to the possibility that a supposed physical sequel of illness or injury is actually emotional in origin. Inquiry should also be made into evidence of nervous instability, such as irregularities in nutrition and elimination, disturbances of sleep, night terrors, and such other nervous manifestations as thumb-sucking, nail-biting, stuttering, fears, and faints or fits. Inquiry should also be made into sex habits. Some knowledge of the child's social adaptations is usually desirable. His reactions towards not only other members of the family, but also his school companions and playmates should be considered. His character may be shown by his ability to lead or to assume a more active rôle amongst his companions. It may be important to ascertain whether the child's interests are more social or individual. This will be shown by his favourite games and hobbies. Particularly in younger children, play is apt to have symbolic value and may give a clue to the child's inmost wishes, which may have been thwarted by circumstances. For this reason many clinics for the nervous disorders of childhood, including that at Guy's Hospital, London, have a playroom, where children's reactions towards each other and their own special interests may be observed. Considerable importance is attached to play interests by the Freudian school, by the use of these observations in the analyses of nervous children. The mental life of childhood is one in which the distinction between phantasy and reality is less clear than in the normal adult. Children's wishes and thoughts are less subject to distortion and disguise, and their plays and dreams reveal in more exact form their particular strivings and interests at an age in which verbal expression may still be incomplete and inadequate.

We may then proceed to a consideration of the child's environment which, from the psychiatrist's point of view, may be divided into physical and psychological. The physical environment is on the whole of minor importance. Poverty becomes a factor only when there is serious malnutrition or lack of essential elements in diet. Poor homes have by no means an unduly large proportion of nervous children. Even in delinquency Cyril Burt<sup>(2)</sup> places poverty low down in the list of factors. More often the material condition of the home is unsatisfactory, not so much through lack of means as through mismanagement and lack of system. The

psychological environment, on the other hand, is of extreme importance. Here we may consider the personalities of the parents and their methods of bringing up the family. Emotional disharmony and an inconsistent or inadequate discipline may be emphasized as the two most important environmental factors contributing to nervous instability in the young. The absence of paternal influence in the broken home, where the mother is left single-handed with her responsibilities, is an important point which was elaborated recently by Dr. McGeorge<sup>(3)</sup>. The following two cases came recently under my notice.

CASE I.—A boy, aged eight years, was brought by his mother, who reported that he was restless in his sleep, fidgety during the day, rather irritable and noisy at play. She also volunteered the information that he had not "yet" shown any "foolish actions". It appears that the father had been in a mental hospital since just before the birth of this child and that the mother attempted to prevent conception at the onset of the father's mental illness. She feared both hereditary taint and interference with the child's development from contraceptive measures. There is an elder brother, aged ten, and apparently normal, who sleeps by himself, while the patient still sleeps with his mother. Under examination the child was quiet and cooperative and gave an intelligence quotient of 100 on the Binet-Simon test. Advice was given to the mother on the subject of her anxiety, but so far she has seemed little inclined to conceal her fears and has not yet consented to let the child sleep by himself.

CASE II.—A boy, aged fourteen years, backward, about eighteen months behind the average in general intelligence, clumsy and very dependent on his mother, was brought for advice concerning his childishness and inability to fend for himself. The social worker was requested to make inquiries from the school and the home. Information was obtained from the school that the boy was poor with work, that he showed absence of control, made only moderate progress in his general studies, but displayed some aptitude in manual work. His attitude towards the teachers was not friendly, but he mixed fairly well with the other boys. The social worker interviewed the grandmother at home, who said that the boy and his brothers did all the housework, washing included, before going to school, and on Saturdays worked for her. The mother said that all the children were well behaved, but that they did not go anywhere with other children; she preferred to entertain them on their free afternoons by taking them out to different places of interest. She also said that she would not let the patient join the boy scouts, as they were too rough. The boy expressed a desire to be a baker, and arrangements were made accordingly to give him a trial for a month. The scout-master of the local troop was also interviewed and the mother was induced to let the patient and one of his brothers join up. They are both enjoying their work with the scouts. The placement with a baker was not satisfactory, and the boy tried a couple of other positions before he found congenial work, which he has now held for some time. He has become a manly young fellow, holds himself erect, and displays an air of confidence which was quite absent on the first interview.

Divided control and interference by relatives may have an important bearing upon certain cases. Then we have such situations as the unwanted child or the child against whom, for a variety of reasons, parents or others may display prejudice. It has been observed that children in foster homes and foundling institutions often display behaviour which seems to be directed towards obtaining special attention and affection.

### Negativism.

The psychiatrist is well acquainted with a peculiar resistance to external control, coupled with the tendency to do the opposite of what is required, most commonly displayed in *dementia præcox*. A similar type of conduct is not uncommon in young children, but fortunately occurs in a more favourable setting. In the young child negativism appears to arise from the urge to achieve notice and to become the centre of interest in the family. As the only child is most often the victim of oversolicitude on the part of the parents, he seems specially prone to negativism. The common manifestations are refusal to eat or sleep or develop regular habits of elimination. The negativistic reaction is intensified by display of emotion, especially anxiety or anger on the part of parent or nurse. Like the baby in "Alice in Wonderland":

He only does it to annoy  
Because he knows it teases.

Occasionally a vicious circle is established to the extent that the child becomes under-nourished or exhausted from loss of sleep and frequent emotional storms. One can understand how the persistence of this reaction is liable to develop into serious antagonisms or into a general disregard for authority in later years. The treatment in these cases should be described to the parents: if the parents can be encouraged to turn a blind eye to the child's failures and unobtrusively to praise his successes, rapid improvement usually follows. If the parental attitude cannot be corrected, removal of the child to hospital or to an environment where he can be left to himself amongst other children usually results in the establishment of a healthy reaction.

### Psychoses in Childhood.

Although children are liable to brief episodes of delirium and confusion in association with febrile attacks, a true psychosis is rare before puberty. The incidence of insanity shows a steep rise between the ages of fifteen and twenty-five, the increase thereafter being more gradual up to the involutional and senile periods, when the graph again takes a steep upward turn. According to Robertson<sup>(4)</sup> the following are the numbers of first admissions to mental hospitals in England and Wales, also of cases of *dementia præcox* and of the manic-depressive psychosis at various age periods per 100,000 of the general population (see Table I).

Extraordinary conduct in a child is more often hysterical and clearly reactive to the home environment.

TABLE I.

| Group.                     | Age Group. |        |        |
|----------------------------|------------|--------|--------|
|                            | Under 15.  | 15-19. | 20-24. |
| First admissions           | Not stated | 30     | 68     |
| <i>Dementia præcox</i>     | 2          | 12     | 35     |
| Manic-depressive psychosis | 3          | 8      | 11     |

CASE III.—A boy, aged seven years, was admitted to hospital for observation with the history that for a week he had been strange in manner, apparently oblivious to his surroundings, uttering strange cries, stripping off his clothes and crawling about the floor. He was a little restless after admission and attempted to get out of bed and did not seem very disposed to talk with the nurses. It was not difficult to gain his confidence and he cooperated well in the application of the Binet-Simon tests, in which he acquitted himself satisfactorily. During two weeks' observation his conduct remained perfectly normal, except for some oddity at his parents' first visit. Both father and mother impressed one as being anxious people and rather suspicious of hospital methods. A near relative had recently been admitted to a mental hospital, and the circumstances had been discussed at home in the child's presence.

One of the earlier students of psychoses in children was Emminghaus, who published a monograph on the subject in 1887, summarized by Ireland.<sup>(5)</sup> Emminghaus mentioned as indications of insanity in quite young children, restlessness, sleeplessness, crying and screaming. With the development of motor coordination, biting, scratching, tearing clothes and running blindly about become the outstanding features of a psychosis. At a later age, in the prepubertal phase, there is involvement of the passions and affections in the form of moral defect, such as lying and stealing. Delusions appear more prominently towards maturity. Changing conceptions of mental disorder may make it difficult for us to appreciate the observations of Emminghaus.

The subject has more recently been reviewed by Kasanin,<sup>(6)</sup> who reports that of 6,000 patients admitted to the Boston Psychopathic Hospital (which acts as a reception house) only 65 were under sixteen years of age, and included in the number were many toxic, delirious patients. Kasanin notes that the depressed child tends to speak in terms of physical symptoms, hence what the psychiatrist might diagnose as a depressive phase may be looked upon by his colleagues in other branches of the profession as a metabolic disorder, with possible neglect of environmental factors. In general, the outstanding features of a depressive phase in childhood are multiple somatic symptoms, hypochondriacal preoccupations, sadness, disinclination for conversation and for activity, refusal of food. As symptoms of mania may be mentioned mild elation, irritability, over-activity, talkativeness, all of which are more readily considered from a psychiatric aspect. To the category of mania one would add phases of indiscipline and difficulty in application to study, which are apt to be handled unduly strictly. One seeks in vain for any clear indications of features in the personality which may be regarded as warning signs of more serious instability in later years. Kraepelin<sup>(7)</sup> has little to say regarding the types of individuals who may be regarded as candidates for the manic-depressive psychosis, beyond mentioning such milder manifestations of emotional instability as the cyclothymic, irritable and depressive temperaments, which, however, are seldom recognized before adolescence. From a preventive standpoint we have



little to guide us in ascertaining the type of child who is likely to develop a manic-depressive psychosis. Kasanin (*loco citato*) reports that many of his juvenile affective psychotics had been noted as emotionally unstable or sensitive and seclusive from early years. In psychoses occurring before the age of twenty prognosis is often doubtful, since patients who display apparently typical depressive or manic features in the first attack are apt to relapse after no long interval and then to run a course which is more schizophrenic in type.

Owing to the greater incidence of *dementia præcox* in mental hospitals' statistics (over 20% of all admissions) and to its unfavourable course, comprising over 50% of the "chronic" population of mental hospitals, its constitutional background and prodromes have perhaps received more attention than those of manic-depressive psychosis. The first manifestations of both clinical groups have a somewhat similar age incidence. Kraepelin (*loco citato*) states that in boys there is a frequent history of a quiet, shy, retiring, self-absorbed disposition, coupled with a lack of a reasonable amount of naughtiness. In girls, before the onset of a definite psychosis he noted sensitiveness, irritability and obstinacy. Professor Adolf Meyer's formulation of the constitutional background is as follows:<sup>(8)</sup>

In cases of *dementia præcox* we find over and over an account of frequently exemplary childhood, but a gradual change in the period of emancipation. Close investigation shows, however, often that the exemplary child was exemplary under a rather inadequate ideal, an example of goodness and meekness rather than of strength and determination, with a tendency to keep to the good in order to avoid fights and struggles.

In another paper<sup>(9)</sup> he states:

Looking over the records of sufficiently studied cases, I find that the children who later developed abnormal reactions of the type of *dementia præcox* were peculiar rather than defective in the senses which we have in mind when speaking of those who are backward and retarded. Furthermore, I find that as a rule we are concerned less with aggressive mischief than with repressive, and what is at times characterized as "depth of thought".

There develops an insidious tendency to substitute for an efficient way of meeting the difficulties a superficial moralizing and self-deception, and an uncanny tendency to drift into so many varieties of shallow mysticism and metaphysical ponderings, or into fantastic ideas which cannot possibly be put to the test of action. All this is at the expense of really fruitful activity, which tends to appear as insignificant to the patient in comparison with what he regards as far loftier achievements. Thus there is an ever-widening cleavage between the mere thought life and the life of actual application, such as would bring with it the corrections found in concrete experience. Then under some strain which a normal person would be prepared for, a sufficiently weakened and sensitive individual will react with manifestations which constitute the mental disorders constituting the "deterioration process" or *dementia præcox*. Unfinished, or chronically subefficient action, a life lived apart from the wholesome influence of companionship and concrete test, and finally a progressive incongruity in meeting the inevitably complex demand of the higher instincts, this is practically the formula of the deterioration process.

In patients who have later developed marked paranoid symptoms in their psychosis, and whom he has been able to observe from childhood, Jelliffe noted as early traits high intellectual attainments

combined with a striking lack of practical ability and of adaptability to routine and regulations. Irritability and suspicion were outstanding features in several of his cases.

Potter,<sup>(10)</sup> in a review of six cases of schizophrenia in children between the ages of four and twelve years, emphasizes the dependent attitude on the part of the child as an early feature, and excessive solicitude or over-dominance on the part of one or other parent. The meek and passive child with "shut in" tendencies is apt to achieve quite undeserved merit both from parents and teachers through his abnormal deficiency in high spirits and naughtiness, while throughout the important formative years his avoidance of conflict with other individuals leaves his own character development immature, lop-sided and poorly equipped for the responsibilities of later life. Unfortunately these children are apt to elude notice at a time when something might be done in the way of extraversion by the encouragement of more healthy interests.

In fifteen cases of psychoses in children under the age of sixteen, who have been under my observation, one child showed a change of disposition at the age of six.

Up to the age of six he had been lively and excitable, but then became placid and easy-going. Definite morbid symptoms did not develop until the age of twelve, and by the age of sixteen he was a clear schizophrenic. Signs of a psychosis appeared at the age of seven in one case, at thirteen in one case, at fourteen in six cases, and at fifteen in seven cases. One patient had his first attack of manic-depressive psychosis at the age of seven, when he became restless and sleepless, lost energy and became quite disinclined for activity, and recovered in about four months. He remained well until he was fourteen, when he passed through a phase of excitement, noisiness and restlessness, and recovered in two months. Two years later he became sleepless and again excited, and recovered in two months.

Of the fifteen patients, four showed an unusual shyness and seclusiveness before the age of twelve. More often one finds a development of these morbid traits, so well described by Meyer and others, at or after puberty. There are slight grounds for considering the more common nervous manifestations of childhood as portents of psychosis, though we may not doubt their importance as the foundation for the so-called minor nervous maladies of adult life. Hence a feeling of pessimism regarding preventive work in childhood as far as the later development of insanity is concerned.

#### The Retarded Child.

I do not propose to deal with the grosser forms of mental deficiency, although the importance of ascertaining these cases as early as possible and of providing suitable training is generally admitted. It has been estimated that in the average English public (State) school population between the ages of seven and fourteen years 12-15% are subnormal, but teachable in ordinary schools with special provision (intelligence quotient not below 75) or in special schools (intelligence quotient not below 50); 1-79% are defective to the extent that they need training in occupation centres and institutions.

It is important to remember that educational failure and milder forms of mental dullness may depend on modifiable, if not remediable, factors. The causes may be purely physical, such as defects in the special senses of hearing and sight; an unhealthy naso-pharynx; malnutrition; diseases such as anæmia, rheumatism, chorea, epilepsy, tuberculosis. Insufficient sleep may occur in all classes of society; insufficient food and clothing are perhaps more common disabilities among the poor of the older countries. Any of these factors may give rise to psychological reactions from a sense of inferiority.

Sometimes one meets with special mental disabilities, such as poor auditory and visual imagery, subnormal capacity for concentration and memorizing, perhaps resulting from faulty training. Then there are the children with practical rather than literary interests, who are plainly bored by the ordinary school curriculum, but who may develop a gratifying keenness for manual training.

Among temperamental disabilities may be mentioned irritability and instability and the manifestations of anxiety which sometimes depend upon a lack of self-confidence or upon some emotional conflict. On the other hand, there may be an apathy and lack of initiative, self-assertiveness and determination, such as have been referred to as the constitutional background of schizophrenia.

Finally, the causes of educational failure may be situational or environmental. The school itself may be at fault, for example, where there is antagonism between teacher and pupil or where the method of instruction is unsuitable. Unsuitable home conditions, frequent changes of domicile, parental neglect and disharmony may call for investigation in some cases.

One would like to see the development of a closer contact between the teacher and the physician in regard to some of the scholastic misfits.

#### Trauma, Illness and Nervous Sequelæ.

Trauma is often suggested by parents and others as the cause of mental defect and instability. As regards actual mental deficiency, there is a tendency nowadays to discount the possibility of injury at birth in the absence of permanent physical signs. In assessing the effects of trauma in a child previously deemed to be normal, an accurate history is all important. One should inquire regarding the severity of the head injury, its immediate consequences and the persistence of symptoms. Less importance will be attached to trauma the longer the interval of freedom from symptoms before the appearance of any disturbance of conduct. In not a few cases there will be clear evidence of retarded mental development before the injury. In epileptic children head injury is rarely assignable as a factor, but frequently occurs as a result of a fit. One may sometimes be successful in eliciting a history suggesting *petit mal* attacks before the occurrence of the head injury. In some cases of mental deficiency one is tempted to allow the trauma fiction to con-

tinue in order to spare the parents' feelings. The psychiatrist is often called upon to deal with cases in which the child has clearly developed an invalid reaction after an injury, thereby continuing to obtain privileges at home and escaping the discipline of school. A frank explanation to the parents and gradual encouragement of the child to a normal life are sufficient in most cases. In regard to children who have come under observation for delinquency with a history of head injury, Burt (*loco citato*) says: "A blow in the skull is often cited as a charitable explanation for subsequent misconduct." When there is a clear history of a change in disposition following a severe injury, together with headache, dizziness and defective memory and power of concentration, he warns against too great repression and too great stimulation. An open air life away from the city often proves helpful.

It should be remembered that suggestibility and impressionability tend to be increased during illness and convalescence. While a child is entitled to consideration after a severe physical illness and care should be taken to avoid pressure at school for a period, there is a risk that invalidism may be unduly prolonged. For example:

CASE IV.—A girl of twelve had a severe attack of measles five years ago. She made satisfactory progress at school since her illness, but has avoided the more strenuous games and at home complains of headache whenever her brothers and sisters become a bit "rowdy". She is the third of a family of five and I have so far been unable to ascertain why she maintains this attitude, beyond the fact that the invalidism is accepted, if not encouraged, by the rest of the family, and all sorts of concessions are made, even to the extent of requesting the neighbours to close their windows when they play their gramophone.

#### Delinquency.

Time does not permit me to deal in any detail with antisocial conduct. Moreover, Dr. Kemp Bruce<sup>(11)</sup> has recently placed on record his experience at the Sydney Children's Court. But I would point out that antisocial conduct (lying, stealing, destruction, cruelty, sex offences) usually has its beginning in the lesser environment of the home before society is officially offended and the child makes his first appearance at the Children's Court. And consistently with the view that misconduct may be as much a symptom of nervous instability as habit disorders and fears, intensive investigation and treatment are to an increasing extent taking the place of mere punishment. The importance of the early recognition and correction of delinquent tendencies will be recognized from Table II (Burt, *loco citato*).

TABLE II.  
Age at First Conviction of 2,204 Habitual Offenders.

| Age period. | Percentage. |
|-------------|-------------|
| 5 and under | 0.8         |
| 6-10        | 13.5        |
| 11-15       | 39.0        |
| 16-20       | 19.0        |

The remarkable rise in the number of cases between the ages of eleven and fifteen is no doubt

dependent on the psycho-physical instability of puberty as well as on the release from the discipline of home and school which is common at this period.

**CASE V.**—A boy of seven years was brought by his mother, who complained that he had been stealing for two years. The social worker visited his school and learned that he was considered somewhat of a bully, that he told lies and would steal anything, chalks, books *et cetera*, and even a pound note from the teacher. His school progress was average.

On a visit to the house, a semi-detached cottage, tidy and clean, in a narrow street, the parents were seen. The father was a thin man, and deaf; he said the boy took his watch and chain and jewellery; he was very annoyed at his son's delinquencies and wanted to see a change in the boy, who was fairly good in the house otherwise.

It was learnt, on having a chat to the boy, that he did not like his father because he beat him, and that he did not steal, but only took the things from home to show the others, and bought sweets with the money he stole and gave them to his pals. He did not like his sister, as she had sixpence to spend every day on lunch and he had nothing and had to take his lunch to school, and she did not give him anything, but took him to the shop whilst she spent the money. He wanted to go away to his aunt in the country.

His mother said, as they were on the dole, an aunt had been giving the sister money every day for the last two years, as she liked her. She also gave her clothes and jewellery, and the boy got nothing. The aunt was advised to give all the children something, or the sister to divide with the others, but this could not be done, and all the school children knew he had been stealing. The social worker arranged for the boy to go to his aunt in the country. He was away for some months and reports came that he was a normal, happy boy, not thieving and with no bad habits. He came home; the sister took lunch to school and was not allowed to spend so much money. The boy has been back at school for five or six months and reports are that the delinquencies have not recurred.

#### The Child Guidance Clinic.

Psychiatry, unfortunately, is in a stage where, if something more than mere symptomatic treatment is to be attempted, investigation must cover a wider field than was considered sufficient a generation ago. Advances in psychiatry are incompatible with short cuts.

The problems presented by the nervous child may be physical, intellectual, temperamental, educational, vocational, or domestic, and most often a complex of factors calls for investigation and adjustment. Moreover, the steady increase in the provision of social services has widened the range of remedial facilities. Hence the development of team work in the investigation and treatment of the nervous child.

Child guidance clinics arose from the Juvenile Psychopathic Institute founded in Chicago in 1909 under the directorship of Dr. William Healy, who was the first to employ the team method in the handling of juvenile delinquency. Healy now carries on his work in the well known Judge Baker Foundation at Boston, United States of America. The team method was later extended to the treatment of psychopathic conditions in childhood when child guidance clinics were established in several large cities in the United States of America from 1922 onwards, with financial assistance from the Commonwealth Fund. A clinic subsidized from the same source was opened in London in 1929. These

clinics are intended for children whose behaviour arouses the disapproval of those responsible for their welfare, for those who present personality disorders, such as timidity, anxiety, seclusiveness, unhappiness or restlessness, and for those who have developed such undesirable habits as nail-biting, enuresis and disturbances of various physiological functions, but who possess intelligence at least approaching the average. These clinics handle only a selected number of cases in order that reasonably full investigation may be carried out, adequate records kept, and satisfactory supervision maintained as long as necessary. Moreover, not the least important function of the clinic is the education of the medical profession and of social workers in the methods employed.

The psychiatrist holds the preliminary interviews with parents and child, and carries out a physical and mental examination. Special experience with the diseases of children is desirable, although the opinion of a paediatrician may usually be obtained for special cases.

The psychiatrist may then refer the child to the psychologist for an estimation of the intellectual development and for investigation into any special educational disabilities. One would like to emphasize the point that intelligence tests are of little value if carried out hurriedly and in a disturbed atmosphere. The procedure should be that of a laboratory experiment, carried out strictly according to rules and with an absence of distraction. The average out-patient department of a general hospital provides conditions that are far from ideal. As a rule, although many psychologists would disagree with this statement, the contributions of the psychologist towards the assessment of temperamental qualities, as ascertained by formal psychological tests, are less valuable. One must, however, admit the capacity for the psychologist to gain through experience a sound psychiatric sense. The psychologist should have sufficient educational experience to enable him to act as a liaison officer between the clinic and the school.

The third and not least important member of the team is the social worker, whose functions include the collection of information concerning environmental factors, including the child's social adjustments at home and at school. A visit to the home may reveal more than can be ascertained by lengthy interviews in the clinic.

The psychiatrist, as director of the clinic, correlates the reports of the psychologist and the social worker with his own observations and draws up a scheme of treatment, in which the aid of the social worker is frequently invoked. According to the needs of the individual case, treatment may range from simple explanation and advice to the parents to personal control on the part of the social worker, involving frequent visits to the home or placement in convalescent or foster homes where the home environment is unsuitable. The social worker is also responsible for seeing that patients or parents



attend the clinic as long as the director considers necessary.

With some justice these elaborate clinics have been termed "therapeutic tanks". Their expense (the equivalent of £4,000 *per annum* in the United States) obviously prevents their widespread establishment. Nevertheless the Board of Social Study in Sydney is approaching the Commonwealth Fund with a request for a grant, with a view to instituting a child guidance clinic. Meanwhile the psychiatric out-patient departments at several general hospitals deal with the nervous child as far as limited facilities will allow. Only one of these clinics has a social worker. During the past twelve months, out of some 500 new patients of all ages attending the psychiatric out-patient department at the Royal Prince Alfred Hospital, there were 127 children under the age of 17. The following list gives a general indication of their types:

|  |    |
|--|----|
| Epilepsy   | 21 |
| Mental deficiency  | 19 |
| Restlessness and excitability                              | 18 |
| "Nervousness", including personality disorders             | 18 |
| Enuresis nocturna  | 9  |
| Hysteria   | 8  |
| Mentally retarded (less than two years behind the average) | 7  |
| Chorea   | 6  |
| Not yet diagnosed  | 5  |
| Delinquency  | 4  |
| Stammering   | 3  |
| Melancholia  | 1  |
| Schizoid personality                                       | 1  |
| Delayed puberty  | 1  |
| Problems essentially physical                              | 6  |

127

The general public is beginning to seek advice regarding the nervous child, and unless we as a profession meet the need, treatment will be sought elsewhere.

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#### BLOOD GROUPING IN PROOF OF PATERNITY.

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ACTIONS for the determination of paternity—affiliation cases, as they are called—are constantly before the courts and have to be decided on purely circumstantial evidence, with occasionally conse-

quent injustice to innocent men. In the Court of Petty Sessions in Brisbane alone 98 such cases were decided by the magistrates for the last three financial years, 29 in 1931, 41 in 1932, and 28 in 1933. Very many threatened actions of this sort probably never come into court at all and go by default for lack of a defence, for the reason that many young men with families to consider would rather face anything than the sordid publicity involved. And it is highly probable that some innocent young men have been forced into marriage with a woman for whom there is no real affection, into parenthood of a child to which they are not related, and into the check or ruin of a promising career, in ignorance of the fact that there was a chance, sometimes a good one, of proving non-paternity. Given certain data, it is possible to compute these chances. In this short paper I have calculated these chances for Australian subjects on the data available, which are not as full as they might be, for those who may be consulted by innocent young men as to their chances of success in entering a defence to a charge for maintenance.

The technique, of course, depends on blood tests which place the parties concerned in the blood groups which they inherit, and which, so far as the individual is concerned, never change throughout life. An individual remains in the group in which he was born, irrespective of any consideration whatever, age, disease or anything else. As Lattes<sup>(1)</sup> says: "We may now say that all biologists regard these blood tests as affording absolutely certain and conclusive evidence for the proof of filiation." He notes that in Germany, Austria, Russia, Denmark and Scandinavian countries this method is a well recognized instrument of justice. British countries seem to be very backward in this regard.

Grouping an individual depends on the recognition in his blood of substances of two different orders: (i) isoagglutinogens of four different types, and (ii) agglutinogens of at least two types from which heterospecific immune sera can be prepared.

The isoagglutinin grouping is the long familiar four-type classification, containing the Groups O, A, B and AB, this notation now replacing the numerical one formerly used in connexion with the Jansky and Moss systems. The following table, taken from Wiener,<sup>(2)</sup> shows the heredity of the groups, according to all possible matings.

TABLE I.

| Groups of Parents. | Groups of Children Possible. | Groups of Children Not Possible. |
|--------------------|------------------------------|----------------------------------|
| 1 O × O            | O                            | A, B, AB                         |
| 2 O × A            | O, A                         | B, AB                            |
| 3 O × B            | O, B                         | A, AB                            |
| 4 A × A            | O, A                         | B, AB                            |
| 5 A × B            | O, A, B, AB                  |                                  |
| 6 B × B            | O, B                         | A, AB                            |
| 7 O × AB           | A, B                         | O, AB                            |
| 8 A × AB           | A, B, AB                     | O                                |
| 9 B × AB           | A, B, AB                     | O                                |
| 10 AB × AB         | A, B, AB                     | O                                |

Landsteiner and Levine<sup>(3)</sup> showed that by means of immune sera other agglutinogens could be demon-

strated in human blood. Two of these, which they termed *M* and *N*, were proved to be inherited as Mendelian dominants. All the rapidly accumulating evidence goes to show that this is correct, so that the following table of heredity can be taken to be rigidly applicable. Table II shows the heredity of agglutinogens *M* and *N* for all possible matings. The following notation is used: *M+* *N+* is an individual possessing both agglutinogens *M* and *N*; *M+* *N-*, one possessing agglutininogen *M*, but lacking *N*; *M-* *N+*, with only agglutininogen *N*. A blood of the type *M-* *N-* is impossible and has never been found to exist.

TABLE II.

| Types of Parents.                           | Types of Children Possible.  | Types of Children Not Possible.           |
|---|--|---|
| 1 <i>M+</i> <i>N+</i> × <i>M+</i> <i>N+</i> | <i>M+</i> <i>N+</i> , <i>M+</i> <i>N-</i> ,<br><i>M-</i> <i>N+</i> , <i>M-</i> <i>N-</i> |   |
| 2 <i>M+</i> <i>N+</i> × <i>M-</i> <i>N+</i> | <i>M+</i> <i>N+</i> , <i>M-</i> <i>N+</i>  | <i>M+</i> <i>N-</i>                       |
| 3 <i>M+</i> <i>N+</i> × <i>M-</i> <i>N-</i> | <i>M+</i> <i>N+</i> , <i>M-</i> <i>N-</i>  | <i>M-</i> <i>N+</i>                       |
| 4 <i>M+</i> <i>N-</i> × <i>M+</i> <i>N+</i> | <i>M+</i> <i>N+</i> , <i>M+</i> <i>N-</i>  | <i>M-</i> <i>N+</i> , <i>M-</i> <i>N-</i> |
| 5 <i>M+</i> <i>N-</i> × <i>M-</i> <i>N+</i> | <i>M+</i> <i>N+</i> , <i>M+</i> <i>N-</i>  | <i>M-</i> <i>N+</i> , <i>M-</i> <i>N-</i> |
| 6 <i>M-</i> <i>N+</i> × <i>M-</i> <i>N+</i> | <i>M-</i> <i>N+</i>  | <i>M+</i> <i>N+</i> , <i>M+</i> <i>N-</i> |

So far, I am not aware of any work published in Australia on this aspect of blood grouping; it is important that such work should be done for two reasons, the absolute truth of the theory of Landsteiner, as shown graphically in Table II, can be established only by multiplying exceptions on a statistical scale, and medico-legal findings cannot now be regarded as complete without investigation of this character of a given sample of blood.

Wiener and his co-workers<sup>(4)</sup> have published a formula for calculating the chances of proving non-paternity, based on the frequency distribution of the iso-groups in the general population. Using this and taking the figures found by Tebbutt<sup>(5)</sup> for the group frequencies in Australia, I have got the results shown below. The table shows together, for convenience, the distribution of the iso-groups as found by Tebbutt along with the chances of proving non-paternity, expressed as a percentage and as odds in favour.

TABLE III.

| Group.    | Frequency. | Chance of Proving Non-Paternity. | Odds.    |
|-----------|------------|----------------------------------|----------|
| <i>O</i>  | 52.6%      | 19.2%                            | 1 in 5   |
| <i>A</i>  | 36.8%      | 9.4%                             | 1 in 10  |
| <i>B</i>  | 7.4%       | 13.7%                            | 1 in >7  |
| <i>AB</i> | 3.0%       | 52.8%                            | 1 in <2  |
| Average   |            | 21.9%                            | 1 in 4.5 |

As I have noted, the frequency distributions of the *M* and *N* grouping have not been worked out for Australia yet. Just as a theoretical example of the influence of data of this kind in improving the chances of proof, I assume the data required to be exactly the same for Australia as for New York City, as quoted by Wiener (*loco citato*). They are shown in Table IV.

TABLE IV.

| Type.               | Frequency. | Chances of Proving Non-Paternity. |
|---------------------|------------|-----------------------------------|
| <i>M+</i> <i>N-</i> | 30.53%     | 34.11%                            |
| <i>M-</i> <i>N+</i> | 21.24%     | 41.09%                            |
| <i>M+</i> <i>N+</i> | 48.23%     | 0                                 |
| Average             |            | 18.64%                            |

On this basis, combining the chances of proving non-paternity for the two sets of groupings, I have obtained the following result. The notation is as follows: for example, *O+* means an individual of Group *O* possessing agglutininogen *M*, but not *N*; *AB-*, an individual of iso-Group *AB* possessing agglutininogen *N*, but not *M*. There are thus twelve possible combinations, and the chances of proving non-paternity for each of these is shown in Table III, along with, for comparison, the chances for the iso-groups alone. Obviously the chances of an *A+* individual are the same as for an iso-Group *A* person, and similarly for the *M+* *N+* individuals in the other iso-groups.

TABLE V.

| Type of Putative Father. | Chances of Proving Non-Paternity Percentage. | Odds.    | Iso-Group Chances Percentage. | Iso-Group Odds. |
|--------------------------|--|----------|-------------------------------|-----------------|
| <i>O+</i>                | 46.7   | 1 in 2   |                               |                 |
| <i>O-</i>                | 52.5   | 1 in <2  |                               |                 |
| <i>O+</i>                | 19.2   | 1 in 5   | 19.2                          | 1 in 5          |
| <i>A+</i>                | 40.2   | 1 in 2.5 |                               |                 |
| <i>A-</i>                | 46.6   | 1 in 2   |                               |                 |
| <i>A+</i>                | 9.4  | 1 in 10  | 9.4                           | 1 in 10         |
| <i>B+</i>                | 43.1   | 1 in >2  |                               |                 |
| <i>B-</i>                | 49.2   | 1 in 2   |                               |                 |
| <i>B+</i>                | 13.7   | 1 in >7  | 13.7                          | 1 in >7         |
| <i>AB+</i>               | 68.9   | 2 in 3   |                               |                 |
| <i>AB-</i>               | 72.2   | 7 in 10  |                               |                 |
| <i>AB+</i>               | 52.8   | 1 in <2  | 52.8                          | 1 in <2         |
| Average                  | 36.4   | 1 in <3  | 22.0                          | 1 in 4.5        |

It will thus be seen that the chances of proving non-paternity are much enhanced by testing for *M* and *N* agglutinogens as well as for those of the old four iso-groups: in the *O* group, the chances are improved from 1 in 5 to about 1 in 2; in the *A* group, from 1 in 10 to about 1 in 2; in the *B* group, from 1 in 7 to about 1 in 2; in the *AB* group, from 1 in 2 to 7 in 10; and on the average from 1 in 4.5 to 1 in 3.

It seems to me that the routine testing of the blood of accused persons for *M* and *N* agglutinogens is imperative. The technique is not beyond the resources of any well equipped pathological laboratory, and may be found in the original paper of Landsteiner and Levine (*loco citato*).

Since a person inherits his blood groups in both systems for life, we have in them a fixed, unalterable character, and moreover the scheme of inheritance is no longer a matter of conjecture, but of certainty.

The time is therefore well due for making investigations of this kind in affiliation cases an obligatory part of our legal system. I think that judges and magistrates who neglect to order tests of the kind

indicated run the risk of inflicting grave and lifelong injustice.

I should emphasize in conclusion that Table V is based on assumed figures which, however, would not be far from accurate; still, it is incumbent on workers in this field to contribute data on the distribution frequency in the Australian of the M and N agglutinogens.

#### Acknowledgements.

I should like to record my thanks to Mr. G. A. Carter, Under-Secretary for Justice, Queensland, for his kindness in supplying me with the figures relating to affiliation cases in the Brisbane courts.

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#### TRAUMA AND EPITHELIOMA.

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THE task of defining the precise part, if any, played by a single act of trauma in the causation of cancer cannot at present be satisfactorily fulfilled, since the central problem remains unsolved. It is commonly accepted that repeated slight injuries, which we call chronic irritation, have a rôle in the ætiology of at least some forms of carcinoma, and in this, experimental evidence supports the clinical impression. But no experiment can be quoted in which a malignant growth has been evoked by a single act of violence. Zahin, for example, could not provoke cancer by inoculating, under the skin or into the viscera, tissues previously traumatized (such as cartilage or particles of bone); and although Lubarsch made sarcomata and epitheliomata appear after repeated injuries inflicted on the same part and at relatively long intervals, no neoplasm has yet been experimentally produced by a single act of violence to healthy tissue.

On the other hand, Kotzareff and de Morsier have noted that in a rat after a single injury to a part of the skin which had been previously irritated with soot, a growth can be made to appear more rapidly than from irritation with the soot alone. Further, Pentimalli has been able at will to localize, by a single injury, a metastasis in any part whatever of a fowl suffering from sarcoma. This experimental evidence is of special importance and has a particular bearing on the case which is

later quoted, by the courtesy of Dr. R. M. Mackay, from the sixth annual report of the Workers' Compensation Commission of New South Wales. On this point one may also recall the case recorded by Coley, of a patient who suffered from an inguinal sarcoma and in whom a metastasis developed in the maxilla following the extraction of a tooth.

But if the laboratory gives us no definite lead in elucidating this problem in causation, the clinical evidence is voluminous and capable of being variously interpreted.

We first of all find ourselves face to face with the ancient disposition to grasp at a facile and plausible interpretation by ascribing all growths to trauma. It is a common experience to see a hæmatoma follow violence, and the lay mind is not perplexed by the morphological gulf between hæmatoma and neoplasm. With the advent of social legislation, humanely designed to safeguard the interests of the employee, the attribution of maladies to injury has become more frequent; with subtle skill the patient consciously or unconsciously fits the mosaics of time and place and circumstance to the necessary design. Thus it is that the clinical evidence in favour of trauma as an important factor in the ætiology of newgrowths has become portentous in size and confusing in character. We are entitled to treat these pretensions with considerable reserve, seeing that the organized violence of a world at war has not been followed by a definite increase in the cancer rate among those who survived their injuries. Nor has it ever been shown that an athlete is more prone to neoplastic processes than an individual leading a sheltered and a cloistered life. The element of coincidence itself would no doubt show itself to be of considerable importance could we but work out the mathematical probability of the chronological juxtaposition of injury (which is frequent in the life of every individual) and cancer (which is a disease of common occurrence). But since we are ignorant of the exact causation of cancer, we are not justified, in the present state of our knowledge, in categorically denying the possibility or even the likelihood of a single act of traumatism being a factor in the determination of a neoplastic process. Indeed, in certain forms of sarcoma the case for inculcating injury is a strong one and the causal relationship cannot be controverted according to the majority of cancerologists. With other types of growth the clinical evidence is usually less convincing, and medical opinion fluctuates with the credulity or prejudice of the observer. At best the injury is but accessory or incidental.

The part played by trauma in causing epithelioma, in particular, has always been suspect. It is fatally easy to dredge from the past half-forgotten incidents in which some violence has been inflicted in the neighbourhood of the growth and which can be arraigned as the culpable factor.

In the following case we have the comparatively rare example of a squamous epithelioma which evolved under the eyes of several medical attendants.



J.S., aged thirty-six years, a motor driver, on November 10, 1928, was using a spanner, when it slipped and his hand came in violent contact with the metal work of the car. The skin on the back of the left hand was lacerated, but he continued his work. Seven days later the whole hand was swollen and he was told by his medical adviser that it was septic. He saw an insurance doctor two days later and several other medical men within the following week. Five to six weeks after the injury he resumed work. The wound had healed, but two small swellings the size of a pea began to develop about this time; one of these was excised. The pathological report from the Royal Prince Alfred Hospital was:

Macroscopically the specimen consists of a small area of skin which contains a white nodule half an inch in diameter. This is hard and shows a tendency to superficial ulceration. On section there is a limited but ill-defined downgrowth of epithelium. Microscopically there is definite invasion of the subcutaneous tissue by masses of squamous epithelial cells with formation of many cell nests and with keratinization.

In this case the patient was under careful observation from the time of injury until the development of the newgrowth. He had no obvious precancerous lesion in other parts of the hands. His comparative youthfulness made the development of an epithelioma more striking, although in this country basal-celled and squamous-celled epitheliomata alike are seen in young people.

It might be suggested that the patient was also exposed to chronic irritation with motor oils during the course of his occupation. It is not usual for all the facts to stand together in so close a relationship and to be attested by different observers. The claim was admitted.

A far more frequent type of history is, however, illustrated here:

J.B.M., aged forty-eight years, was referred by Dr. H. R. G. Poate on September 22, 1924, on the question of possible radium treatment. He had a very extensive inoperable squamous epithelioma of the left cheek. He stated that two months previously there had been a breaking out on the inner side of the lip and at the left angle of the mouth. From this the ulceration spread and quickly involved the whole of the inner side of the left cheek. He had some trismus, which made examination difficult, but a huge ulcer crater could be seen occupying the inner surface of the left cheek. No carious teeth were to be seen on that side. The skin of the left cheek showed redness and infiltration. No effective radiation treatment was possible. He was sent to Lidcombe State Hospital, but later died in the country. No mention whatever of any injury was made by the deceased at the time of examination, but after his death a claim was lodged and an action begun. It was alleged that "some six months before", when at work and apparently quite well, he had received a severe blow on the outer side of the left cheek with a wedge, that the cheek had been severely bruised, but that he had received no medical attention, and that subsequently a "lump" had appeared inside, which ulcerated.

On these facts I advised that the claim should be contested because of the vagueness as to the alleged injury, its date and subsequent evolution. No trustworthy evidence could be adduced as to the precise area traumatized, a most important point. The case did not go to court, as the claim was withdrawn.

In this instance it would appear that the incrimination of an antecedent injury did not occur to anyone till after the death of the patient. The patient himself had certainly not associated his malady with this injury at the time when he consulted me. These second thoughts as to causation

are always open to grave suspicion. Had the chronological association been at all intimate, the patient or his friends would quickly have linked together in causal relationship so unusual an injury and so grave an affliction.

But if we doubt on theoretical grounds the likelihood of trauma evoking cancer in healthy tissue, most authorities favour the opinion that in the presence of a precancerous condition, such as hyperkeratosis or leucoplakia, trauma may be an *agent provocateur*. It is not improbable that there are other similar predisposing states, local and general, of which we are ignorant, and that the rôle of trauma in all cases is but a minor one. Epithelioma develops at times in the scars which follow injuries, especially after burns. Where a precancerous lesion has been known to exist at the exact site prior to an alleged injury it cannot be denied that the trauma may have swung the pendulum towards malignancy. And even if precancerous lesions have been known to be present only in the immediate neighbourhood of the area of a newgrowth, the probability of there having been a microscopic precancerous lesion and of its having been incited cannot be denied. It is, of course, unfortunately easy to discover incidents of trauma in the months preceding the appearance of an epithelioma.

An apparently straightforward history was the following:

P.K., aged fifty-eight years, a sand-carter, was referred to me on May 5, 1933. Ten weeks previously, while shovelling sand, he had hit his hand against an iron stanchion and the skin had been knocked off. First aid was shown to have been given on this date. The abrasion at first healed in part, but then began to retrogress. On examination he had a raised ulcer of a diameter of two centimetres, with thickened edge, on the back of the left hand, over the first metacarpal space. It was typically epitheliomatous. No enlarged lymphatic glands were palpated. Numerous hyperkeratoses were present on the back of both hands, some of so marked a degree as to suggest that they were already themselves definitely epitheliomatous.

In the presence of an epithelioma which developed ten weeks after an authenticated accident, and on the precise area abraded, it was impossible to deny the probable causal relationship of injury and growth, and the insurance company was so advised. The only doubt that existed in my mind was whether the process had not been already epitheliomatous at the time of injury.

A point which here arises is the unwisdom of a company insuring a man with extensive hyperkeratoses on the dorsum of his hand, who was occupied in work that exposed him both to the sun's rays and to the chance of local injury. It might rebound to the workers' disadvantage if insurance companies refused to insure susceptible subjects in occupations for which there are increased risks. A yearly examination of all employees in an industry would permit an intelligent medical observer to detect those types in whom continual exposure to solar rays might favour the occurrence of rodent ulcers, just as it would eliminate the elderly labourer whose heavy work may ultimately cause a direct hernia. Rodent ulcer must be recognized as an occupational disease in out-of-door workers.

A case in which the growth was not an epithelioma, but an angio-endothelioma, and which developed shortly after injury may be appropriately related here:

Wm. H., aged nineteen years, sheet-metal worker, was referred on October 10, 1929, by Dr. Claremont. He gave a history that three years previously he had cut the left thumb with a ham and beef knife. This had left a linear scar. On September 26, 1929, he cut across the old scar with a piece of galvanized iron and two or three days later burnt the same spot with solder. Less than a week after this a "pimple" appeared, for which he took advice at a hospital. The swelling was incised under local anæsthetic, but no pus was evacuated and the incision bled freely. On examination I found a tumour 1.5 by 2.0 centimetres in diameter, just distal to the left metacarpophalangeal joint and on the dorso-lateral aspect. A fine scar one centimetre long could be seen to one side of the growth. The growth was freely excised, and Dr. Shearman reported: "a vascular growth of angiomatous nature. In parts are definite aggregations of cellular growth, so that the condition is really angio-endothelioma. Any malignancy would, I think, be local rather than general."

Dr. Claremont and I agreed in recommending the company to admit liability.

Some interesting aspects of the subject are revealed in this claim:

T.F., a fuelman, on July 1, 1931, received a minor injury to his forehead and nose from striking these parts against a cold steam pipe. After receiving first aid treatment the patient resumed his work some minutes later. In January, 1932, a swelling developed in his right cheek, which he attributed to a defective tooth, and three teeth were extracted. The trouble persisted and he was sent to the Royal Prince Alfred Hospital for an X ray examination of his antrum. The right antrum was found absolutely opaque, "probably due to an old fracture and effusion into the same". Subsequently he was attended by a homeopathic lay practitioner. On July 28, 1932, the chief medical officer of the railways saw him. The swelling of the cheek had by then greatly increased. The hard palate was ulcerated and projecting. There was a deep ulcer just lateral to the right nostril and the cervical glands on the corresponding side were enlarged. A small, perfectly healed scar on the forehead, between the eyebrows, and on the bridge of the nose indicated the site of the old injury. He died on October 26, 1932, of squamous epithelioma apparently arising from the right antrum.

The notes of the above case were submitted to me and I advised that it was highly improbable that the injury described had any part in causing the cancer. It seemed far-fetched to suggest that an injury, the gravamen of which fell on the area indicated by the two small scars, could be held responsible for an epithelioma developing within the antrum. For the claimant the ingenious plea was set up that a fracture of the antrum had been caused at the time of injury and that the resulting chronic irritation had caused the fatal condition, since irritation is acknowledged to play an important part in the ætiology of squamous epithelioma. In reply to this, it was maintained that fractured antra and chronically inflamed antra are frequent and squamous epithelioma in this position relatively rare, and it was disputed that at any time there had been a fracture—that the first radiologist had merely presumed the existence of a possible fracture to account for the opacity, which at the time was no doubt due to growth. The Workers' Compensation Commission found against the claimant.

I have selected the foregoing from a list of personal experiences merely as case types. I have not had one in which the question of trauma was raised in respect to a metastasis, but in the annual report of the Workers' Compensation Commission of New South Wales for the year 1931-1932 a very important case is given. Subjoined is my own *résumé* of the history there given:

In the middle of 1929 a worker had his right index finger and corresponding metacarpal removed for a squamous epithelioma. Early squamous epithelioma was also found in one axillary gland on that side. He resumed his occupation as bread carter, and eighteen months later, when he was suffering from a "boil or abscess" on the right elbow, the open door of his cart swung back and struck him on the "boil" so that he fell. First aid was rendered. Some three or four weeks later the worker complained that there was a "little affair in the muscle of his right arm". The surgeon examining found a tumour the size of an orange on the inner aspect of the right arm, which he considered to be secondary cancer of the deep brachial glands; he therefore amputated the arm. In the surgeon's opinion the condition was secondary to the cancer in the finger, and there was probably a relationship between the appearance of this swelling in the biceps and the "boil" on the elbow. The amputated arm was unfortunately cast away without a histological examination being made. Before the Commission it was suggested that the swelling in the upper arm might have been inflammatory or sarcoma (because of its rapid growth). Various medical opinions were expressed as to the probable nature of the swelling and as to the effect of the blow on the "boil". The Commission found that the injury received arose out of and in the course of the worker's employment and resulted in the necessity to amputate his arm.

The subsequent history illuminates the whole case.

Early in 1933 a large swelling developed high up in the axilla and a sinus appeared. A hypodermic needle was passed into the swelling to aspirate some fluid, and the presence of numerous squamous epithelial cells in the aspirated fluid was considered as being indicative of either an epithelial lined cyst or of a malignant condition. Since then his condition has become rapidly worse.

In the light of the subsequent history it is apparent that trauma played the part of localizing and exciting a metastasis in a cancer already in process of generalization. It may not be out of place here to point out that the British workers' compensation acts (including those of our Australian statutes) do not, in terms, make any distinction between cases in which trauma is the effective cause of cancer and those wherein trauma arising out of work is a material aggravating factor which accelerates disability for work. The case law which, in practice, exalts the element of aggravation to such an important status appears to me inequitable. The failure to distinguish between these two very different classes of cases is all the more serious since it is not difficult for a worker who develops some form of external cancer artlessly to recall an incident in which a certain degree of violence was received on the afflicted part.

A glance at the historical side of this subject is not without value. The concept of trauma as a factor in the causation of cancer runs like a thread through all the tangled skein of medical history. Hippocrates and Galen accepted the belief and they handed it on right down to the barber surgeons of

the middle ages. It continued to hold its place in medical teaching during the last century, when Velpeau sustained it in France and Virchow in Germany. At the Congress of Surgery in France in 1907 Segond made a report which has become classical. In 1918 the French Association for the Study of Cancer investigated the problem in the light of the experiences of the war and its unparalleled violence to humanity during four years. And again in 1925 the Congress of Legal Medicine reviewed the whole subject.

In his report of 1907 Segond was of the opinion that "*un traumatisme quel qu'il soit ne puisse jamais par lui seul créer de toutes pièces une tumeur maligne sur un sujet sain et non prédisposé*", but he recognized that an intimate chronological association justified the belief that injury might serve "as a pretext" for the development of a neoplasm. Thiery, at the same congress, maintained that epithelial cancer could never in any case be considered as an accident of work.

When in 1918 the French Association of Cancer made its report, the opinion was held generally that in certain circumstances a patient could not be refused the benefit of the doubt as to the influence of trauma in causing certain cancers. The rarity of cases of all kinds observed since the war in which trauma could be alleged as a cause of cancer would make it appear that the opinion expressed at a time of much emotionalism had been given too sympathetic a turn. Balthazard, for example, maintains that he has never met with a single case in which it is possible to recognize trauma as having had any influence in provoking or aggravating a cancer. Roussy, in 2,500 consultations at the *Centre Anticancéreux* at Villejuif, between 1921 and 1928, met with only two cases, one of sarcoma, the other of basal-celled epithelioma, in which a traumatic origin could be definitely sustained.

Since there is no single infallible test as to the effective part played by trauma, in the last count our opinion must depend on the plausibility of the facts as presented. And here the accuracy of the history given and the confirmation of its essential parts are of an importance that cannot be easily overstated.

To determine a norm of judgement, certain criteria have been suggested by different authors. There is general agreement: (i) that the previous integrity of the injured part should be established, (ii) that the newgrowth should appear at the exact site of the injury, (iii) that there should be histological confirmation of the diagnosis of malignant disease.

The postulates on the significance of which a certain difference of opinion exists are: (iv) the adequacy of the trauma. Certain authorities insist that the trauma should be "real and sufficient". It is obvious, however, that no fixed standards can be set, since a trivial injury to a hyperkeratotic area may be considered sufficient to initiate an epithelioma. On the other hand, it can be shown

that very severe injuries to bone, accompanied by fracture, are usually not followed by sarcoma. In most of the cases in which sarcomata of bone have been attributed to injury the trauma received was not a grave one. It would appear, therefore, from a consideration of all the facts that no fixed limits of any value can be set, but that each case must be considered on its merits. In a recent case referred to me for an opinion it was claimed that a fibro-sarcoma of the foot had been caused during the worker's occupation as chauffeur by the constant pressing down of the accelerator. (v) The length of time between the alleged injury and the appearance of the growth. On this point there is a wide range of opinion. A moderate estimate sets the limits at not less than four to six weeks and not more than three years after the trauma.

It is obvious that any tumour developing within a few days of an alleged injury must come under the suspicion of having already existed and of having been undetected. Yet here again it is unfair to be too dogmatic. In the case of J.S., quoted above, the tumour was observed to develop macroscopically within a period of six weeks. Professor C. Julliard, of Geneva (President of the Sixth International Congress of Accidents of Work and Professional Diseases) reports a case in which a squamous-celled epithelioma developed sixteen days after an elderly man of sixty-seven had the back of his hand pricked by a piece of rusty iron. Reliable witnesses were brought to support this patient's claim for a condition in which, however, a different interpretation is possible. The claimant was shown to have a number of small papillomata on his hand and on his cheek, but no evidence was brought to show that a similar predisposing condition existed on his hand prior to the accident. Responsibility was admitted without reserve as to the future.

Julliard quotes four other cases. In one, from a Zurich clinic, an epithelioma developed after a man who had extensive hyperkeratoses had burnt himself with a flame; in another, an epithelioma of the lip revealed itself ten to fifteen days after burning with a drop of hot tar. The third, the most striking, was that of a boy of ten who hurt his forehead by falling. The wound healed in ten days without visible cicatrix, but five months later a basal-celled epithelioma appeared on the site of the former injury. The fourth case was that of a man of seventy-nine who developed a basal-celled epithelioma four months after injuring the back of his right hand with a hammer. The growth occurred in the centre of the original bruise.

None of these four cases seems to me conclusive except that of the boy, since the ages of the other patients were such as to make the existence of a predisposing condition extremely likely. But at least it would appear that no narrow limits of time can be set. We should, however, gravely suspect the cases in which a growth is alleged to have appeared very early after the injury or following the lapse of much more than one year.



(vi) It is alleged by some that there should be continuity of symptoms after a permissible interval, but no value whatever can be set on such a postulate.

#### Conclusions.

In conclusion, it would appear to be justifiable to assert:

1. That there is no experimental evidence that an epithelioma can be produced at will in a healthy subject by a single act of trauma.
2. That a single injury is capable of being a determining factor in the causation of epithelioma when applied to a precancerous lesion.
3. That an injury to an epithelioma may increase the rate of growth and the rapidity of generalization.
4. That violence to a part in a subject suffering from a generalizing epithelioma may determine a local metastasis.
5. That although the factor of coincidence must be of importance, we are not justified, in the present state of our knowledge, in denying the likelihood of causal relationship between trauma and epithelioma, provided that, in the circumstantial evidence brought forward, certain postulates are satisfied.

### Reports of Cases.

#### SPONTANEOUS SUBARACHNOID HÆMORRHAGE.

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DURING the past ten years there has been reported an increasing number of cases of spontaneous subarachnoid hæmorrhage. The following cases are reported as examples of the varying severity of this condition, which is not infrequently met with in hospital practice. The name "spontaneous subarachnoid hæmorrhage" has been given to this group, distinguishing it from hæmorrhage due to trauma.

The causes are many. Most frequently the bleeding is due to a leaking or ruptured congenital aneurysm on the arteries of the circle of Willis or to breaches in the walls of arteries, with or without aneurysm formation, weakened by hypertensive or degenerative vascular changes. Syphilis is sometimes present, but it is not so commonly a cause, the usual obliterating endarteritis not tending to aneurysmal dilatation. With intense syphilitic inflammation necrosis of adventitia and media could occur, as Turnbull<sup>1</sup> has concluded. Symonds,<sup>2</sup> in a review of 127 cases, mentioned as other ætiological factors, sunstroke, tumours and cysts of the brain, thrombosis of the superior longitudinal sinus, pernicious anemia, hæmophilia, blood dyscrasias, anthrax, subacute bacterial endocarditis, chronic alcoholism, eclampsia. An association with migraine has been noted. Physical exertion may be a precipitating cause.

The symptoms of subarachnoid bleeding are often typical. The onset is usually sudden, though not always severe; headache and pain at the back of the neck are almost always complained of. The pain may be felt in the back and limbs. Dizziness may occur at the onset. Temporary loss of consciousness is most usual; in the fulminating cases with severe bleeding there may be deep coma until death occurs. More often coma merges into a drowsy state of semi or almost complete consciousness. Symptoms of mild headache, perhaps indicating a leaking

vessel, may precede the ictus of a grosser hæmorrhage. In the moderately severe and milder cases the state of drowsiness often succeeds the initial symptoms, its depth and duration presumably depending on the extent and persistence of the bleeding. The patients are confused, often irritable; persistent headache is their complaint. Memory of the attack may be clear. Vomiting is frequent in the early stages, but this does not usually persist. Signs of local damage to the nervous tissues, hemiplegia or cranial nerve palsies may be present; but in a favourable case they are usually transient and overshadowed by the signs of meningeal irritation. Some stiffness of the neck muscles and pain on flexing the head are typical findings; Kernig's sign may be present. Neck retraction is not often seen; the bleeding is gross when this sign is found. Absent tendon jerks and extensor plantar reflexes are other signs which may often be due to increase in intracranial pressure. There are no characteristic pupillary changes. The intracranial hæmorrhage bursting through brain tissue to the subarachnoid space is usually a severe one and accompanied by a coma which masks the effects of focal brain injury and the meningeal signs.

Retinal changes are present when the increase of intracranial pressure is severe or protracted. They are engorgement of veins, "blurring" of the edges of the optic disks to papilloedema, hæmorrhages into or around the disks to large subhyaloid effusions.

Some fever is common. In a mild case it is present for a few days only, and is not over 37.8° to 38.3° C. (100° to 101° F.). In other and more severe cases it may range higher and last longer. The pulse is often slowed.

Massive albuminuria has been described; it is transient. The frequent association of hypertension and arteriosclerosis with subarachnoid hæmorrhage might point to a renal as against a cerebral origin for this finding. It has been considered analogous to the glycosuria of cerebral damage.

The meningeal signs call for lumbar puncture. In the early stages the cerebro-spinal fluid is blood-stained. It may be stained pink or be almost pure blood. With the cessation of hæmorrhage and the lapse of four or five days without further bleeding the fluid becomes xanthochromic and may be found yellow or brown. Bleeding due to operative trauma is excluded by the even mixing of the blood in more than one specimen collected at the time of puncture; the fluid does not clot and centrifuging leaves a xanthochromic layer of fluid over the red cells. In the early stages the number of white cells found is proportionate to the amount of blood present. Later, by the irritation of the effused blood on the meninges, the white cell count may rise. Organisms are absent in smear and culture.

Bed rest is an essential part of treatment and sedatives may be necessary. Headache, the most distressing symptom, is relieved by lumbar puncture, and lumbar puncture is the chief form of treatment. Hypertonic solutions given by bowel or intravenously might find some place as adjuncts. Spinal drainage should be checked by manometric readings; there must be danger in the careless withdrawal of fluid. In the severe cases with free bleeding, or in those associated with marked arterial hypertension it is difficult to be sure of the wisdom of repeated spinal punctures. Drainage should then be less lightly undertaken, unless there seems to be the danger of fatal medullary compression. In cases with normal or moderate arterial pressures and with apparent subsidence of gross hæmorrhage lumbar puncture every three to five days, or when headache recurs, will often give relief and seem to hasten recovery.

The prognosis is doubtful. Many patients die quickly. Some, with an apparently grave outlook, may recover remarkably after a stormy illness. Recurrence is likely; subsequent headaches are common.

The records of five patients are given below in summary.

#### Case 1.

R.S., a female, aged forty-six years, was admitted to hospital with a diagnosis of cerebral hæmorrhage. She had had headache for fourteen days. On the morning of admission she collapsed and had been semi-conscious

since. She was unconscious on admission, but was able to move both arms and legs. Her blood pressure was 135 millimetres of mercury systolic, 90 millimetres diastolic. Two days later she showed stiffness of the neck on flexion. The pupils were equal and reacted to light. The right knee jerk was absent and the right plantar reflex extensor. Under ether anaesthesia lumbar puncture yielded deeply blood-stained fluid at a pressure of 440 millimetres of cerebro-spinal fluid; 30 cubic centimetres of fluid were withdrawn, reducing the pressure to 300 millimetres. Two more punctures were performed during the next three days, the fluid being still deeply blood-stained and at a pressure exceeding 400 millimetres. The Wassermann test of the cerebro-spinal fluid gave no reaction. The urine contained no albumin or sugar. Leucocytes numbered 18,000 per cubic millimetre.

Seven days after admission to hospital the patient became deeply unconscious and died with hyperpyrexia. On admission the temperature was 36.1° C. (97° F.); the pulse rate was 58. On each day succeeding the temperature rose to 37.6° C. (99.8° F.) and on the day of her death to 43° C. (109.4° F.).

Autopsy revealed a small aneurysm of three millimetres diameter between the anterior cerebral arteries; this had ruptured. There was much blood around the base of the brain and the spinal cord.

#### Case II.

E.R., a female, aged forty-seven years, was admitted to hospital with a diagnosis of meningitis. She had wakened the day before with severe headache and pains in the back of her neck; the same night she became giddy and lost consciousness. She had been treated at another hospital for six months for increase of blood pressure. She was semi-conscious and drowsy on admission. There was pain on flexing the head; no neck rigidity was found. The blood pressure was 190 millimetres of mercury systolic, and 110 diastolic. The next day lumbar puncture yielded 30 cubic centimetres of blood-stained cerebro-spinal fluid under "markedly increased pressure". Her headache was relieved. Three days after admission she complained of severe headache and developed marked neck rigidity and head retraction. Lumbar puncture was performed and 20 cubic centimetres of blood-stained fluid were removed. The patient collapsed during the procedure, became cyanosed and died. Her temperature was subnormal throughout.

The autopsy revealed extensive hæmorrhage, especially at the base of the brain. Dense clots covered the circle of Willis. The left anterior cerebral artery near its junction with the internal carotid artery was ruptured. There was also a small unruptured aneurysm on the posterior communicating artery.

#### Case III.

D.B., a male, aged fifty-five years, was suddenly seized with a severe occipital headache, which was followed by vomiting; during the next three days he drove his motor car to the city, but his headache persisted and he felt far from well. Four days later his headache was still severe. He was drowsy, but quite rational. There was moderate neck rigidity and Kernig's sign was present on both sides. The knee jerks were absent and his plantar responses were flexor; there were no pupillary abnormalities. Both optic disks showed distinct blurring, but no measurable swelling. Lumbar puncture yielded a yellow fluid under increased pressure; it did not clot. There was no increase of cells, and a slight increase of globulin was present. No organisms were found in smear or culture. The Wassermann test gave no reaction with blood and cerebro-spinal fluid. The urine contained no albumin or sugar. The blood pressure was 120 millimetres of mercury systolic, and 80 millimetres diastolic. The headaches continued, and ten days later lumbar puncture yielded a clear fluid under increased pressure. Six weeks after the onset of his illness he felt quite well. The optic disks were almost normal and the knee jerks had returned.

#### Case IV.

E.H., a female, was sent to hospital as suffering from meningitis. Several days before she had become giddy and had fallen over while scrubbing a floor; she had not become unconscious. Since then she had had severe headache, with pain in the back of the neck and vomiting. On admission she was very drowsy. There was some rigidity of the neck. Abdominal reflexes were absent. Plantar reflexes were flexor. The left knee jerk was exaggerated. The systolic blood pressure was 180 millimetres of mercury and the diastolic 110 millimetres. Lumbar puncture yielded 20 cubic centimetres of blood-stained fluid under increased pressure. Further punctures were done on the third, sixth and eleventh days after admission; on each occasion the fluid was blood-stained; on the last it was not under increased pressure and was lightly stained. The patient was discharged well after twenty-four days in hospital. Her temperature had reached 37.8° C. (100° F.) twice during the first week, and 37.2° C. (99° F.) once during the second week. The pulse was approximately normal throughout.

#### Case V.

E.B., a female, thirty years of age, complained that four days before admission to hospital she got a severe headache with pain in the neck. There was vomiting and drowsiness. The neck was stiff and Kernig's sign was present. On the day after admission lumbar puncture yielded blood-stained fluid at 450 millimetres cerebro-spinal pressure. The optic disks then showed blurring of the nasal margins with a small hæmorrhage into the substance of the right disk. One more puncture was done three days later; the fluid was still blood-stained, and at 400 millimetres pressure. She left hospital after only ten days, but felt and seemed well. There was a definite history of migraine.

#### References.

- <sup>1</sup> H. M. Turnbull: *The Quarterly Journal of Medicine*, 1915, Volume VIII, page 201, quoted by Symonds.
- <sup>2</sup> C. P. Symonds: *The Quarterly Journal of Medicine*, 1924, Volume XVIII, page 93.

### CASE OF COMPRESSION FRACTURE OF THE SPINE.

By H. SKIPTON STACY, M.D. (Sydney),  
Honorary Surgeon, Sydney Hospital; Honorary  
Surgeon, Royal South Sydney Hospital.

#### Case I.

C.Q., an adult Chinese, whilst driving in his cart, was struck by a tram. He was brought, in a dazed condition, to the Royal South Sydney Hospital on February 23, 1932. X ray examination revealed a compression fracture of the first lumbar vertebra. On February 26, 1932, following the Watson Jones method, as described in *The British Medical Journal* of February 21, 1931, he was given 0.016 gramme (one-quarter grain) of morphine thirty minutes before the reduction. At the end of this time he was placed face downwards on the head end of an adjustable operating table, the upper end of the thighs resting on a chair against the wall (this prevented it being pushed away); a long singlet had previously been stitched over the shoulders and beneath the perineum; the spinous processes and the iliac crests were further protected by small pads of felt. The patient was now in the position of gripping the edge of the operating table with his abducted arms, the head resting on a small pillow; between the groins and the neck there was no support. The table, to begin with, was about 30 centimetres (one foot) higher than the chair; it was then screwed up until it was 52 to 60 centimetres (21 to 24 inches) higher. In this position the spine gradually became more and more hyperextended.

The vertebra, in these cases, is crushed by forcible flexion; reduction is effected by moving it in the opposite direction. In this way weight is taken off the front of the vertebral bodies, the intervertebral spaces are opened anteriorly, the anterior common ligament is put on the

stretch, and the wedge-shaped vertebra is restored to its original shape.

Plaster of Paris bandages were now applied and well moulded to the spine, sacrum and iliac crests. The plaster extended well up the thorax (front and behind), but was cut away under the axillæ; it extended well over the sacrum and down to the level of the trochanters and *symphysis pubis*, but was cut away over the groins to allow flexion of the hips. The patient was returned to the ward in the prone position. After the first day he was encouraged to move about in bed. On the third day sacrospinalis exercises were practised; lying prone, he lifted his head against resistance; he also lifted each lower limb by hyperextending the hip. On the tenth day he was allowed to get up; he left the hospital on the following day. It was my intention to keep him in plaster for four months, but he felt so well, or else he was so anxious to resume the care of his market garden, that within a week or two of his discharge he discarded the plaster and resumed work with all the industry of his race. I have seen him once since, when he was well and had no pain.

#### First Aid and Early Treatment.

The results obtained by Watson Jones and others who have applied his methods would seem to imply that a patient with an injured spine should be carried face downwards. When the face is upwards, the spine is flexed, the deformity is exaggerated, and the risk of spinal cord injury much increased. It is more than likely that in the prone position the deformity would be reduced by the time the patient reached hospital. Even if, within a few days of the injury, the patient lies prone, with hyperextended spine supported only by his arms at the side of his head and by the front of his legs and thighs, leaving the trunk entirely unsupported, body weight alone is sufficient to restore the vertebra to its original shape and give perfect anatomical reduction. This may be successful even up to ten days after the injury; but naturally the ideal time is the first day.

I am anxious to see how this patient's spine has behaved in the absence of support and hyperextension; but so far he has eluded capture.

#### Case II.

Since writing the above an even more striking case has come under my care at the Royal South Sydney Hospital.

E.H., a woman, aged twenty-two years, was injured in a motor accident seventeen days prior to admission. X ray

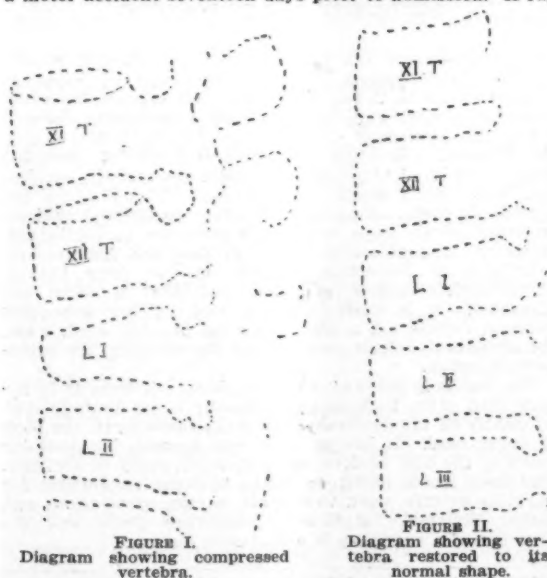


FIGURE I.  
Diagram showing compressed vertebra.

FIGURE II.  
Diagram showing vertebra restored to its normal shape.

examination revealed a marked compression fracture of the third lumbar vertebra, the bone being much splayed

out. The following day, the eighteenth after the accident, she was put up in hyperextension in plaster. A skiagram made subsequently showed that the vertebra had been restored almost to its normal shape. The accompanying diagrams, drawn from skiagrams prepared by Dr. H. M. Cutler, show the condition well.

## Reviews.

### THE ACTION OF HOMOGENEOUS X RADIATION.

THE only book in any language upon the action of homogeneous X radiation on living tissues would be interesting in any case. Moppett's work has the added interest of unique and ingenious experimentation in this difficult field.<sup>1</sup> The book recapitulates most of its author's earlier work and also contains a brief statement of the results of more recent experiments and two introductory chapters on X ray physics.

Moppett's principal results are as follows:

1. X rays of certain narrowly defined wave-lengths produce atrophy of the chorio-allantoic membrane of the domestic fowl's egg when the amount of energy conveyed by the beam is surprisingly small.

2. This atrophy may be produced with any other wave-length of radiation or heterogeneous group of wave-lengths, but in these cases enormously higher dosage is necessary.

3. An inadequate dose of this specially effective atrophy-producing wave-length produces stimulation and hypertrophy of the membrane. A visible reaction in the membrane is secured with 1/900 of one pastille dose. A still smaller dose gives no visible change.

4. Homogeneous X radiation of wave-length lying between the special atrophy-producing wave-lengths gives hypertrophy alone, although it is stated to be likely that persistence with the application would have produced atrophy.

5. The effect of a dose of homogeneous radiation sufficient to produce atrophy is neutralized by previous exposure of the specimen to the ordinary heterogeneous radiation of the tube. Details of dosage are not given, but the time of exposure is stated as ten minutes. Exposure to heterogeneous radiation does not interfere with the development of atrophy if the homogeneous radiation is applied first ("prior action").

6. When two of the specially effective atrophy-producing wave-lengths are applied simultaneously to a specimen, neutralization of the effects of each beam "rather than reinforcement" is noticed.

6. In general, narrow spectral wave-length bands exist and the admixture of wave-lengths outside this band leads "to a diminished reaction in virtue of the phenomenon termed antagonism".

The deduction to be made from Moppett's experiments, granting their validity and their applicability to human tissues, is that radiation of a high degree of spectral purity would give effects with incomparably smaller dosage than the heterogeneous radiation at present employed clinically. Whether the differential effect of homogeneous radiation on normal and pathological tissues would be greater than at present appears to be still an open question. This, of course, is the all-important point. Mere economy in radiant energy usage is of little significance if there is no further increase in the radiosensitivity of malignant tissue, for example. It is the radiosensitive interval or difference in sensitivity exhibited by normal and pathological tissues towards the radiation which is important. In the present volume Moppett describes clinical experiments bearing somewhat on this point, but there do not appear to have been any conclusive experiments on differential radiosensitivity towards homogeneous X radiation. Indeed when applied to localized human skin epithelioma, the surrounding zone of skin included in the

<sup>1</sup> "Homogeneous X Radiation and Living Tissues", by W. Moppett, M.D., Ch.M.; 1932. Sydney: Australasian Medical Publishing Company, Limited. Demy 8vo., pp. 133, with illustrations. Price: 12s. 6d. net.



treatment showed an erythema with a dose of 180 R (French). This would seem to indicate the absence of an augmented radiosensitive interval. The point is vital and should be investigated. Moppett suggests that the skin overlying a deep-seated tumour should first receive a dose of heterogeneous radiation which, on the basis of his experiments, would antagonize the homogeneous radiation in the skin only and leave it free to penetrate and effect changes at a depth. If this proves to be possible, it will be the greatest advance made in radiology since the introduction of filters.

In many respects the author does not do himself justice. The book contains so many new experimental results which run counter to accepted views that the full proof should be stated. In many places radical statements are made, and for the proof the reader is referred to Moppett's previous papers. This is of course quite fair, but does not aid the author in securing acceptance for his results. Even the composition of the crystal employed in the production of the homogeneous radiation is never stated, but it is referred to merely as the "crystal", although in the preface the author claims to give special attention to his X ray spectrometer. More use of sectional sub-headings would be an immense help and tables showing the actual numbers of eggs exposed in some of the crucial experiments would aid conviction. To particularize, on page 116 results are given for ordinary mixed radiation presumably as used in clinical radiotherapeutic practice. Concerning the reaction of the chorio-allantoic membrane to this ordinary radiation it is stated: "Marked variations were found whilst the total incident energy was kept constant. For example, at 100 kV. the threshold dose was approximately  $9.25 \times 10^6$  ergs per square centimetre, whilst at 120 kV. (calculating from the time of exposure) only  $2.3 \times 10^6$  ergs would be required to produce a reaction". Disregarding the ambiguity of the first sentence which presumably should read not "total incident energy . . . constant" but "rate of incident energy . . . constant", no one will accept the extraordinary result which is stated when the number of experiments performed is not given. One experiment only is shown in the author's diagram. Especially is the result difficult to accept when it is elsewhere admitted (page 50) that 3% of the eggs show an abnormal response, whilst any of them may show a 20% variation. Spurious reactions due to infection are also stated to occur.

It would also be easy to point to examples of imperfect experimentation.

In Figure 26 is a diagram illustrating the author's method of using a "control" egg alongside the specimen being exposed to X rays. These controls were used to insure that the agent responsible for the changes was the X radiation and that alone. But it does not seem to have been appreciated that to be of any use the "control" egg must be submitted to all the treatment which the irradiated egg receives, *minus* the X radiation alone. From the description given this was not the case, as quite obviously from the diagram and text the control egg is protected from the infra-red and visible radiation reflected on to the irradiated egg by the crystal from the target of the tube. Further (page 56): "It was found that a visible reaction could be produced in the direct unfiltered rays passing through the spectrometer slits after removal of the crystal, but an exposure of the same time was required, say half an hour, as in the case of reflected rays." This is what might be expected if radiation other than X radiation were a factor in producing the chorio-allantoic membrane changes. In the actual experiments the author states that the target of the X ray tube could be seen reflected in the crystal through the spectrometer slits in the exposure position, but no reasons are given in the book for the assumption that of all the radiation falling on the chorio-allantoic membrane it is the X radiation alone which is effective.

The sections dealing with the treatment of squamous epithelioma in the human subject by homogeneous radiation are not very convincing. Five of these cases were treated with an X ray tube having uranium oxide ground into the target. Although run at three milliamperes for periods of one hour (kV. not stated, but presumably

over 115 kV.) the author takes no account of loss of the uranium from the target which so readily occurs. Of the five epitheliomata so treated one was completely cured with a dose of the order 180 R (French), whilst the others showed marked fibrotic and other changes with similar small dosages. As the author seemingly admits, however, the series is too small and normal changes such as fibrosis are fairly common, so that the results are suggestive only.

Even more unsatisfactory, because avoidable, are the experiments with transplantable tumours in animals. "Two mice were inoculated under the skin of the back in the cervical and lumbar regions. One mouse served as a control and the other was irradiated in the region of one only of the two tumours. Observation of all four tumours was then made at weekly intervals." Reports of experiments on such small numbers of animals are, of course, quite useless, as every worker with transplantable tumours in mice knows.

In these respects, it is repeated, the author does not do himself justice. His whole work is highly original, and it would seem, even from the evidence given in the present volume, that many of the results will be confirmed. Objections have been raised that the work is incapable of explanation on the basis of present physical theory, but this is not the case. A physical explanation on accepted lines is quite possible. But in any case it would be a bad thing if experimental results were rejected because theory has no place for them.

In addition to the discussion on homogeneous radiation, Dr. Moppett's book contains descriptions of his ingenious diagnostic test for cancer, his mechanical Ferris-wheel device for use with a radium bomb, his experiments with irradiated colloidal lead and a discussion of the advantages of homogeneous radiation in radiography. He concludes, moreover, that future progress in therapy by means of homogeneous radiation will be accomplished with an improved X ray technique and not with radium, owing to the difficulty of securing a homogeneous output from radioactive substances. The choice of filters to employ radium to most advantage on the doctrine of homogeneous radiation is worked out in some detail.

The book will well repay reading by all X ray and radium workers alike for the results it states, the originality it displays and the unique researches it describes.

#### DEFORMITY DUE TO POSTURE.

"THE DIAGNOSIS AND TREATMENT OF POSTURAL DEFECTS", by Phelps and Kiphuth, provides a survey of this aspect of student education in four large American schools, including Yale University, and, with profuse illustrations, clearly defines the system of exercises found statistically to give the greatest correction in a lengthy list of classified postural lesions.<sup>1</sup> Pure medical fields are strictly avoided, and hence such aspects as aetiology and pathology are outside its scope. American literature on kindred subjects is freely drawn upon, with little reference to continental thought. The thesis is presented that the fundamental principles of correction depend on the facts that a strengthening muscle shortens, and that a weak one elongates. It is hard to agree with an inference that postural defects are a matter for the physical staff, while the structural defects come within the ambit of the orthopaedic surgeon.

The text is in parts somewhat verbose, particularly in the early half of the book, and occasionally is not distinguished by clarity of expression. Apart from these facts, the book is easily read. It breaks little new ground, but contains much of the best modern thought, particularly in scoliosis. The book has a particular value to those responsible for physical welfare work in schools, camps, associations and clubs. Extensive statistical tables are given and the presence of a summary is a desirable feature.

<sup>1</sup> "The Diagnosis and Treatment of Postural Defects", by W. M. Phelps, B.S., M.D., M.A., F.A.C.S., and R. J. H. Kiphuth; 1933. London: Baillière, Tindall and Cox. Royal 8vo., pp. 194, with 108 illustrations. Price: 33s. net.

## The Medical Journal of Australia

SATURDAY, OCTOBER 21, 1933.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

Reference to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

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### MEDICAL BENEVOLENCE.

WERE the members of the British Medical Association in Australia asked whether the members of the medical profession ought to make some effort to alleviate the distress of their brethren who have fallen on evil days, they would one and all accept the obligation. Most associations or societies of people make some sort of provision for the sick, the hapless and the helpless among their members. Medical benevolent associations have been established both in the United Kingdom and in Australia, and though these bodies are not all part and parcel of the organization of the British Medical Association, they make a direct appeal to its members. These bodies are controlled by trustees and generally rely for their funds on monetary gifts or subscriptions.

It is strange and somewhat hard to understand that medical benevolence has been allowed to languish for lack of funds and lack of enthusiasm. Medical practitioners, taken as a body, are given to charity; in their everyday work they give more free service than members of any other profession or the followers of any occupation; they put their

hands into their pockets for a hundred and one different charitable organizations; and their wives often pass furiously from one committee to another to organize social functions to gather money for diverse worthy objects. It is a reproach to them that the activities of their own benevolent organizations should be hampered for lack of funds. That certain medical benevolent associations are able to balance their books at the end of a financial year is no indication that they are fulfilling their objects; more often than not a mere pittance has to be given by the trustees to someone who is in need of much more. Possibly the sleeping conscience of members of the medical profession would be awakened if the trustees of each fund took care that they had no credit balance at the end of each year and if the state of the association's finances were made known through the columns of this journal or by some other means. Information recently obtained from the several States shows that the trustees of the different funds are handicapped in their efforts. In this issue we publish a letter from Dr. J. Macdonald Gill, the Honorary Secretary of the New South Wales Medical Benevolent Association; his letter speaks for itself. The Victorian Medical Benevolent Association obtains its income from subscriptions and investments, and the funds are administered by a committee. There has for some years been a surplus of income over expenditure. There is significance in the fact that the Association has before it a proposal for cooperation with the Victorian Branch of the British Medical Association to secure wider publicity and support. The Medical Benevolent Association of South Australia is in somewhat the same position as the Victorian body. Appeals are issued regularly, and the response, particularly during the last three years, has been described by the committee as unedifying. (We refrain from quoting figures.) In Western Australia the Medical Benevolent Association has been in existence only four years and about one-third of the members of the Western Australian Branch of the British Medical Association have joined. Tasmania has a benevolent fund in connexion with the Tasmanian Branch. Some money is in hand, but, since no requests for assistance have

been received, no steps have been taken to increase the amount. Queensland has no medical benevolent fund.

In appealing to readers of this journal to come to the assistance of those administering the several funds, we would ask them to reflect that a medical practitioner who has been laid low by disease, or who, having met with misfortune, has passed the years of active work, will perhaps be chary of asking for help. The wives of deceased practitioners with children to educate will seldom seek assistance. There is more work for the benevolent associations to do in the several States than is being done. If there is any brotherhood among the followers of medicine, it is here that the kinship may be shown. It is often said in another place that charity, like its sister mercy, blesses him that gives as largely as him that receives. Further, subscriptions to help these funds are sometimes solicited on the ground that one never knows what a day may bring forth and that the healthy and sufficient man of today may be in dire need on the morrow—that membership of a benevolent association is a kind of insurance. This is putting the question on a lower plane, but those who will not respond to the higher appeal might think of this aspect.

### Current Comment.

#### LICHEN URTICATUS.

SEVERAL diverse conditions have been included under the generic title of lichen. The correct classification of some of these disorders is still a matter of dispute. In this protean assemblage have been placed *lichen urticatus*, known also as *urticaria papulosa* and *prurigo simplex*. The aetiology of *lichen urticatus* has not been established and treatment is entirely speculative, with such things as calcium salts, peptones and parathyroid hormone. The disease was first described by Bateman in 1824 and is very common in children. It has been mistaken for varicella and scabies. H. Gordon gives some observations on this disease.<sup>1</sup> He states that some cases approximate to Hebra's prurigo. Pruriginous eruptions in children may be so extensive and chronic that it may be difficult, even in the absence of lichenification and secondary eczematization, to consider them as only *lichen urticatus*. He thinks that the two conditions may be simply variants. There may be an uninterrupted series

embracing urticaria, *lichen urticatus* and Hebra's prurigo. Papular urticaria with vesicle formation is rarely seen in adults, and adult urticaria is uncommon in children. There are many points of similarity between these conditions, and their pathology may be identical. Both exhibit the triple skin response of Sir Thomas Lewis, which is reproduced experimentally by histamine. Histamine may be liberated in the skin cells by antigen-antibody interaction, the antigens being usually, but not always, proteins. *Lichen urticatus* is generally of temporary duration, disappearing with the advance of years. Spontaneous recovery is common.

As regards aetiology, an alimentary origin has been suggested, such as dietary indiscretion. Adult urticaria may be associated with food poisons, but may be caused by other than alimentary factors, such as bacterial toxins, drugs or simply emotions. So in *lichen urticatus* the alimentary factor may not be solely responsible.

R. Hallam, in 1927, found in *lichen urticatus* that admission into hospital was followed by recovery without any other treatment, not even a change of diet. He concluded that food was not the cause of the condition. This, of course, leaves out of reckoning the unconsidered trifles eaten by a child at home and not deemed important by the parents. Subsequently Hallam found that cure resulted from admitting the patients to hospital for the night and allowing them to spend the day as usual. He suspected an antigenic factor in the home bedding. E. F. Corson found an apparent causative factor in only two of thirty-one cases—oxuris infection and sensitization to eggs and milk. Cases are commonest in summer, and heat has been suggested as a factor. Gordon lays stress on the possibility of a nervous factor in many cases. Mothers often describe the child sufferer as a "bundle of nerves". He found the condition commonest in the only child of a family, or the first-born (50%), and next the youngest child (25%). In 30% there was a definite nervous history. Often the patient was the only member of the family with whom the mother had had any "trouble", the patient being quite different from the other children of the family. Mothers stated explicitly that the eruption followed and did not precede an exacerbation of "nerves", and that often an attack could be foretold by the child's general demeanour. The first attack sometimes followed an accident or shock. In two cases of the chronic intermittent variety, however, the child was the reverse of nervous, being particularly "dare-devil".

Gordon placed all his patients on bromides, which seemed to be very beneficial. Some patients were free while taking the bromides and relapsed when they were discontinued. Gordon rightly admits that the fact of a skin lesion in a nervous child improving with the administration of bromides is slender proof that such condition is a "dermatological neurosis" and does not insist that *lichen urticatus* is such in all cases. Gordon allows that it can be due to an overloaded colon, to a food idiosyncrasy,

<sup>1</sup> *The Lancet*, July 15, 1933.



or to any peripheral irritation, but he urges that a psychological factor may play a greater part than has been admitted. Shock and anxiety states have seemed to be the only causes of an attack of acute urticaria, and Gordon considers that a disturbed mental state is the commonest finding in chronic cases. As regards food, Gordon states that it was usually reported that the spots were made worse by certain articles of diet. But in no case could a clear history be established of attacks following the resumption of articles previously omitted. He found it difficult to assess the effect of food, and considered that an unbalanced diet was more important than idiosyncrasy. He states that in all urticarias allergic phenomena are of great importance as predisposing conditions or direct causative agents. Possibly the benefit of hospital treatment is explained by an antigenic factor in the child's home. But a psychological explanation is as simple. Poorer families are specially susceptible to *lichen urticatus* and there may be many factors in their sleeping arrangements which give rise to mental trauma as well as physical discomfort. In the definite condition of *lichen planus* there is often a history of strain, anxiety or shock, and one is tempted to deem such factors as causative agents. By what mechanism an anxiety state can produce a *lichen planus* papule is not yet explained, except by invoking the endocrino-sympathetic system. Gordon found that changes in habitat seemed sometimes to induce attacks of *lichen urticatus*. On the other hand, bad bouts were cured by a "change of air". The exanthemata were definitely provocative. Possibly after the exanthemata the skin remains in a state of *locus minoris resistentiæ* for some time. The evidence of naso-pharyngeal infections as predisposing causes in Gordon's series was not marked. In a few cases sore throats were doubtfully regarded as preceding attacks. In two, after tonsillectomy, the condition cleared up temporarily and then relapsed. In only six of the fifty cases was more than one member of the family affected. This would render an exogenous cause, such as insect bites, unlikely. Amazing and spontaneous recovery is common. In treatment the carbon arc has proved beneficial. Part of such benefit is by aiding the skin to perform its natural functions by the stimulation of light and air. Actinotherapy is beneficial by a "nature cure" effect and is credited with having a direct effect on the metabolism and the endocrino-sympathetic system. The skin is intimately connected with the sympathetic system.

Gordon's fifty cases are too few to warrant any definite conclusions. Can we be sure that *lichen urticatus* is a distinct entity, or might it not be a manifestation of several disorders with different ætiologies? As regards *lichen planus*, it has long been thought to be bacillary in origin. In March, 1933, F. M. Jacob and T. R. Helmbold described the isolation of an anaerobic bacillus from 25 out of 28 cases, the organism not being found in normal skin or other papular diseases. Such findings need confirmation.

#### PROTECTION OF THE PERITONEUM AGAINST INFECTION.

THE pre-operative injection of the peritoneum as a prophylactic measure against infection has been investigated for some years. B. Sternberg has worked on the subject with H. Goldblatt and also with D. A. Snyder. In his early work Sternberg found that ten or twelve days were required to produce maximum protection.

Sternberg and Goldblatt have made a further communication.<sup>1</sup> They used dogs for their experiments; and they describe their results in five different groups. The prophylactic injection as a rule consisted of heat-killed colon bacilli in a 1% solution of gum tragacanth in physiological saline solution. At varying intervals from twelve up to seventy-two hours after the prophylactic injection bacterial suspensions of living bacilli were injected. In some experiments the living bacilli were *Bacillus coli communis*; in others they included *Bacillus pyocyaneus*, *Streptococcus faecalis* and *Bacillus welchii*. Unprotected dogs used as controls invariably died. The percentage of survival among the protected dogs varied from 40 to 80; the percentage was higher as the interval between vaccination and injection with living organisms was prolonged. The reactions within the peritoneal cavity were investigated by the hourly withdrawal of peritoneal exudate. An enormous rise in the white cell count in the exudate was noted; during the first forty-eight hours the cells were mostly polymorphonuclear, later on mononuclear cells appeared in greater numbers. A great decrease in number of living bacteria was noted one hour after they were injected (typical numbers are set out in a table). Sternberg and Goldblatt state that the factor responsible for the protection of the animals was phagocytosis by polymorphonuclear leucocytes.

This method of protection has been used by Sternberg and Goldblatt in the treatment of one hundred patients. From twelve to forty-eight hours prior to surgical operation they have given an intraperitoneal injection of a suspension of *Bacilli coli* in 1% gum tragacanth in physiological saline solution. The injection consisted of thirty cubic centimetres and contained about two hundred million organisms per cubic centimetre. The reactions were those of peritoneal irritation, and the pain was controlled by morphine. The injections were given prior to operations in which there was danger of peritoneal soiling. None of the patients to whom these injections were given developed acute peritonitis. Sternberg and Goldblatt admit that the number of cases is too small for a positive determination of the protective effect of the procedure. Should its value be proven, it would probably be useful before extensive intestinal resections. To use it before an "interval" appendicectomy, as Sternberg and Goldblatt have done, would display a remarkable lack of faith in ordinary surgical technique.

<sup>1</sup> *Surgery, Gynecology and Obstetrics*, July, 1933.

## Abstracts from Current Medical Literature.

### GYNÆCOLOGY.

#### The General Treatment of Leucorrhœa.

E. W. WINTER (*Monatsschrift für Geburtshilfe und Gynäkologie*, May, 1933) discusses the treatment of leucorrhœa. He emphasizes the fact that treatment must be both local and general. General treatment is most important, but measures to raise the general resistance are also valuable, and when the two are combined the period of treatment is shortened. The author's paper deals mainly with various ætiological theories and their effect on general treatment. In particular he advocates a vegetable diet poor in salt and an abundance of fruit. The use of calcium preparations and vitamin D in combination with this diet is most useful in clearing up most vaginal discharges. Ultra-violet therapy can also be of assistance in raising the general resistance.

#### The Gastro-Intestinal Tract During Pregnancy.

H. GUTHMAN AND F. STÄHLER (*Monatsschrift für Geburtshilfe und Gynäkologie*, March, 1933) have investigated radiologically the effect of pregnancy on the position and functions of the gastro-intestinal tract. Their findings are based on the examination of twenty-three healthy women in the latter months of pregnancy. On the whole there is a decrease in tone of the alimentary tract. The enlarged uterus caused a dislocation of the bowel, mainly noted with regard to the stomach, the lowest loop of the ileum and the sigmoid flexure and rectum. They observed that the cardiac orifice of the stomach maintains the average amount of tonus, although in many instances spasticity or a marked hypotonicity was present. The frequent association of heartburn towards the end of pregnancy was probably due to atony of the cardiac orifice. X ray films showed two types of stomach outline: one in which the organ at first resembled an inert sac lying on the *fundus uteri*, and then was associated with a kink in the middle and the assumption of a spiral form; the other type, noted in six cases, resembled the cow's horn shape of *Holzknecht* and was associated with greater tonicity. With either type the stomach was completely emptied within two and a half hours. The jejunum and ileum lay compressed to the left and behind the pregnant uterus, and no difference from the normal times for evacuation in the non-pregnant state was observed. Bismuth meals passed into the caecum within three hours and the small bowel was emptied by the seventh hour. The caecum was found to lie a hand's breadth higher and two fingers' breadth lateral to its usual

situation. The passage of the meal through the large bowel was normal until the sigmoid flexure was reached, where delay occurred up to thirty-six to forty-eight hours. Constipation, therefore, during pregnancy was mainly proctogenic in origin.

#### Carcinoma of the Vulva.

E. VOGT (*Münchener Medizinische Wochenschrift*, May 26, 1933), discussing carcinoma of the vulva, summarizes his findings as follows: (i) Taking a diagnostic piece for section should be avoided as far as possible. If unavoidable the small wound should not be stitched, and if it bleeds freely it should be cauterized. (ii) Leucoplakia and *kraurosis vulvæ* are precancerous stages. (iii) If one operates on vulval carcinoma primarily, then the bloodless operation with the "Thermoflux" is recommended, at least till the skin tumour is removed. These operations should all be preceded by deep X ray therapy. (iv) The primary radium treatment can best be carried out by radium radiation. The author uses gold needles containing ten milligrammes of radium, and in one case of a cornified carcinoma he gave 2,270 milligramme-hours and later 2,000 milligramme-hours. The result was very satisfactory. (v) A five-year freedom of recurrence is insufficient for a cure. Even ten to eighteen years after operation recurrences occur. Vulval carcinomata, even though operation and X ray treatment are completed, require further continuous medical observation.

#### Carcinoma of the Body of the Uterus.

JOHN BEATTIE (*The Journal of Obstetrics and Gynecology of the British Empire*, August, 1933) has studied fifty cases of carcinoma of the body of the uterus treated in Saint Bartholomew's Hospital during the last ten years. The cases have been selected in which there is adequate histological material available for diagnosis and study of the condition. The mean average age at which carcinoma of the body of the uterus gave rise to symptoms was fifty-seven years. Twenty-five of the patients were *multiparæ* and in the remaining twenty-five the women had not been pregnant. In the women who had borne children the average number of pregnancies was four. In 84% the symptoms arose some time after the menopause. The average age at which the menopause occurred in these patients was forty-eight. The main symptom in all fifty was irregular bleeding, but in 10% a continuous watery discharge preceded the irregular bleeding by several months. The physical signs vary. The uterus was normal in 15, while in 35 there was definite enlargement of moderate degree. In three cases which were inoperable, the uterus was greatly enlarged and fixed to the side wall of the pelvis. There were five cases complicated by pyometra. Fibroids were present in 18% only. For classification purposes the author divides the

cases into: (i) Compound glandular adenocarcinoma, 14 cases; (ii) compound papillary adenocarcinoma, 6 cases; (iii) solid or acinous adenocarcinoma, 5 cases; (iv) aplastic adenocarcinoma, 2 cases; (v) simple glandular adenocarcinoma, 2 cases. The author finds there were very few metastases. He points out that several histological types of adenocarcinoma may be found in any one specimen, and it is impossible in all cases to diagnose the histological nature of the main mass of the carcinoma from curettings only. The method of choice for treatment has been panhysterectomy. The operability rate was 94%. He does not favour treatment by radium or deep X ray therapy when operation is available. Radiation can be used to reinforce or supplement operative treatment.

#### Subtotal and Total Hysterectomy.

CHARLES D. READ AND ARTHUR C. BELL (*The Journal of Obstetrics and Gynecology of the British Empire*, August, 1933) have reviewed a series of 2,344 consecutive cases of hysterectomy, total and subtotal, performed in the Chelsea Hospital for Women from 1922 to 1931. They have taken special interest in the relative merits of hysterectomy with and without conservation of the cervix. They attempt to assess the merits of these operations as judged by the mortality, morbidity and sequelæ attendant upon them. The operations have been done by fourteen gynecological surgeons with their individual variations in technique. The cases are consecutive and unselected and a fair proportion of patients were poor "surgical risks". The authors conclude that each operation has a definite place in gynecology. Immediate operative mortality is higher for the total than for the subtotal operation, while the morbidity rate is higher after the total operation. The sequelæ following the subtotal operation are more numerous and of more serious consequence than in the total operation, but the majority could be anticipated by a more thorough investigation of the cervix before operation, and by the more frequent employment of exploratory curettage to exclude malignant disease. Pulmonary embolism, especially following the subtotal operation, accounts for a considerable proportion of the deaths. The authors recommend the more general employment of post-operative massage and exercises. Urinary fistulæ and reactionary hæmorrhage do not appear very often in the post-operative result. The use of silk in the vaginal vault in the total operations incurs a definite risk of sinus formation. The authors recommend myomectomy in selected cases as better than either of the other operations. They do not recommend the routine employment of total hysterectomy, but at the same time point out that the scope of the subtotal operation is strictly limited. Few women who have borne children have completely healthy cervixes. Therefore there is more call for the total operation. They recommend the

subtotal operation for nulliparous women with healthy cervixes when hysterectomy is required for a benign condition, in a few malignant cases when the poor general condition of the patient contraindicates the more severe and prolonged operation, and in benign cases which fall into the hands of those who are inexperienced in gynecological surgery and who have no alternative but to perform the hysterectomy themselves. The total operation for benign conditions is indicated in all cases where the cervix is unhealthy and the condition of the patient does not contraindicate the operation. They are also of the opinion that when diseased appendages are present the total operation is more useful, as it removes an inevitably diseased cervix and, should the surgeon so require it, drainage can be established through the vagina.

### OBSTETRICS.

#### Hæmatomata of the Birth Canal.

B. N. MOSCHKOW (*Monatsschrift für Geburtshilfe und Gynäkologie*, November, 1932) discusses the ætiology of hæmatomata of the birth canal. They occur most frequently in the left labium because of the asymmetrical development of the lower cardinal vein with retention of the right-sided vessels in the post-embryonal liver. In many cases there is a history of previous dysmenorrhœa. The prognosis depends largely on the site and is unfavourable when the tumour is localized high up in the pelvis. Suprafascial cases and large vaginal collections require immediate operation, while infrafascial restricted masses up to the size of an egg are best treated along conservative lines. The anatomy of the lesions is described in detail.

#### Late Results of Eclampsia and Nephritis in Pregnancy.

WILLI SCHULTZ (*Münchener Medizinische Wochenschrift*, December 16, 1932) discusses the question whether kidney disease arising in pregnancy heals completely or leads to a chronic kidney disease. This problem could be satisfactorily determined only by long observations extending over the life of the woman. In addition, the difficulty arises as to whether there had been a nephritis prior to the pregnancy. The idea that chronic nephritis is a sequel is still disputed by many leading authorities. In the author's series of cases a thorough examination was carried out in every case, and also a careful examination of the urine was made. Care must be taken in measuring and correlating blood pressure values, for the results are often variable. To know the diastolic pressure is valuable; if it is above 80 millimetres it makes one very suspicious of kidney disease. Examination of the fundi is essential. Between the years 1900 and 1930, 780 cases of eclampsia, preeclampsia, and *nephropathia gravidarum* were

observed. Since the kidney disturbances differ very little in these three conditions, the end-results are not separately described by the author. Of the 780 patients, 184 (25%) were reexamined in the last few years (60 by Nevensohn and 124 by the author himself). Among these 124 cases the author found no serious kidney lesion: 111 patients were absolutely normal, and in 13 cases slight changes were observed (9 had raised blood pressure with normal urinary findings). Most of these were old women whose last pregnancy had been many years before, and the elevation of the blood pressure was not due to kidney disease. The remaining four of the thirteen patients had slight changes, but later reexamination showed improvement. A reexamination of 14 patients with pathological changes from among the patients examined by Nevensohn in 1925 was carried out. All of these patients were alive and quite well in 1932, and 11 of them were reinvestigated, three refusing reexamination. Five of the patients with high blood pressure and no kidney lesion in 1925 showed no further elevation of blood pressure. Six of the patients with albuminuria, three of whom in addition had granular casts in the urine in 1925, were reexamined. In four of the cases the albuminuria had disappeared. One of the patients had had a nephritis in infancy, eclampsia twenty-seven years ago, and now showed all the signs of a chronic nephritis with hypertonia and cardiovascular sclerosis. The other patient, who had had seven pregnancies (eclampsia once and a pregnancy nephritis twice), now has a high blood pressure (184/116 millimetres of mercury) plus slight albuminuria, and gives satisfactory results to renal tests. Whether this is a case of benign nephrosclerosis (Fahr) or a primary hyperplasia is undecided. From the above results the conclusion is obtained that healing is almost always the usual result in kidney disease due to pregnancy, and that chronic nephritis is a very rare sequela. In such cases one almost always finds a previous history of another kidney disease.

#### Uterine Inertia.

A. BOURNE (*Journal of Obstetrics and Gynecology of the British Empire*, May, 1933) states that if the disasters of midwifery could be traced back to their primary cause, it is probable that the majority of them would be associated with a failure of the dilating and expulsive powers of the uterus. In 4,500 cases the labour of forty-nine patients lasted over forty-eight hours, owing solely to ineffective uterine contractions with or without rigidity of the cervix and without any disproportion being present. The condition is more common in *primipara*, but in six *multipara* who suffered from this condition there was no history of inertia with the first. Induction of labour appeared definitely to raise the rate of incidence. Early rupture of the membranes was, how-

ever, one of the outstanding factors. A very high percentage of still-born infants and a high mortality rate of 10% are the result of this condition. The treatment was mostly on expectant lines. The author, in his search for the cause of uterine inertia, discusses the factors involved in the onset of labour. During late pregnancy it is well known that the uterus contracts rhythmically, but it is not well known that the contractions during pregnancy may be as powerful as during the first stage of labour. The essential difference is less the occurrence of some new activity of the fundus than an active relaxation of the cervical ring of muscle. It is probable that healthy uterine muscle itself has an inherent capacity for contraction and that variation in its activity is due to extraneous influences, nervous or hormonal. It has been shown that the injection of adrenaline causes an inhibition of uterine activity by a stimulation of its circular fibres. Here we have an explanation why fear is such an important factor in uterine inertia. From clinical experience one can foretell that the patient who is full of apprehension of the abnormal will have some degree of inertia. As regards the hormonal influence, it appears that the theory of the degeneration of the *corpus luteum* as instigating the onset of labour must be abandoned, as many cases have been recorded in which the *corpus luteum* has been removed and labour has not ensued. It has been shown that there is an increase in the amount of œstrin in the first stage of labour, but injections of large doses have had no influence on inertia.

#### Cæsarean Section.

I. DAICHMAN AND W. POMERANCE (*American Journal of Obstetrics and Gynecology*, April, 1933) have made an analysis of 733 Cæsarean sections. The death rate was 3.4% for all cases. In a group of 152 elective cases the death rate was 1.9%. It shows very strikingly that there is a definite relationship between the morbidity and the length of time the membranes have been ruptured before operation. The average morbidity was five days for unruptured membranes and 9.4 when they had been ruptured for forty-eight hours. The number of vaginal examinations is another important factor. Amongst the fatal cases, however, there are several in which the membranes were intact and no examinations had been made. The most common cause of death was peritonitis. Embolism occurred twice in the 25 reported deaths. The low flap operation was used in 57 patients whose membranes had been ruptured for an average of 23.6 hours, and the death rate was 3.6%, against 3.8% for the classical operation, in which the membranes had been ruptured for an average duration of nine hours. The authors state that these facts can justly be used as an argument in favour of the low flap operation in so-called "potentially infected" cases.



## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION, IN CONJUNCTION WITH THE SECTION OF PEDIATRICS AND THE SECTION OF NEUROLOGY, WAS held on August 31, 1933, at the Robert H. Todd Assembly Hall, 135, Macquarie Street, Sydney, Dr. A. HOLMES A COURT, the President, in the chair.

#### The Nervous Child.

Dr. A. W. CAMPBELL read a paper entitled: "The Nervous Child" (see page 535).

PROFESSOR W. S. DAWSON read a paper entitled: "The Psychopathic Child" (see page 538).

Dr. J. A. H. McGEORGE called attention to one most important aspect of this subject, namely, the environmental factor. He thought this to be psychological rather than social or physical. He stressed the importance of the maternal influence during the malleable period of the child's life before puberty, and particularly of this influence in regard to hysteria. The absence of the father, either actually by divorce, desertion or death, or in effect through alienation of affection, threw the child entirely on the mother. It was found at Broughton Hall that in 75% of cases of hysteria the child had been living under such conditions. The mothers of schizophrenics were often found to be of peculiar type—either fussy and fond, swamping the child's personality, or else of the rod of iron, Spartan type. Both types were such as to give the child no opportunity of developing its own personality. In both schizophrenia and hysteria the child was either left tied to its mother's apron strings or else found itself alone and bewildered in a world full of adverse circumstances with which it was entirely unfitted to deal.

These were only two types. Hysterogenic and schizogenic were the terms coined for such mothers.

Professor Dawson's suggestion regarding the founding of a clinic was a good one. Education of the laity would perhaps make for diminution in the number of failures, the result of unbalanced parental affection for the children.

If, however, there was any more risky procedure than telling the average fond mother how she should bring up her child, it was interfering in the case of the hysterogenic or schizogenic parent.

Dr. EDGAR STEPHEN expressed his satisfaction with the delightful papers and the happy phraseology, which, for him, always added to the pleasure of an evening out. For anyone interested in children's early life it was a treat to have heard these papers. They gave a sympathetic and compassionate description of the child's delinquencies and showed great moderation and kindness.

Dr. LAURENCE HUGHES thanked the speakers for the two excellent papers. After referring to the suggestion of considering these children from the point of view of conditioned reflexes or a disturbance of the happy balance between the inhibitory and excitatory processes of the cerebral cortex, he said that as a matter of practical experience these children were often a source of worry and anxiety to the general practitioner; the consultant and hospital physician usually attended them under more favourable conditions. Various types were seen. Children who had been affected by a long and serious illness and had much attention bestowed upon them accordingly were liable to be candidates for nervous disorders in later life. Professor Dawson had mentioned the only, the youngest, and often the isolated child as being liable to these disorders. Dr. Hughes mentioned the instance of a child he had seen recently, the youngest and only girl in the family, who had a bilious attack and who was the subject of so much attention that she continued to vomit for three weeks. When she was admitted to hospital away from her home surroundings the vomiting quickly ceased. At the same time one must, of course, be careful, as with adults, to exclude any organic disorder in these cases.

Dr. Hughes referred to the difficulty at times in differentiating atypical habit spasm from chorea; he was hoping that Dr. Campbell would have offered suggestions in this respect. In the absence of other manifestations of rheumatism or chorea the diagnosis was certainly not always an easy matter, and the parents were often anxious to know at the outset whether or no the child had St. Vitus's dance; moreover, as Dr. Campbell had pointed out, the treatment of the two conditions was entirely different.

He was interested also in enuresis, that very prevalent functional nervous disorder, which was often so difficult to treat successfully. The idea of treating this condition by the use of bed-wetting charts had originated with the American physicians; the charts were kept prominently before the child and rewards were given for dry nights. The treatment applied, of course, to older children, and the intelligent cooperation of the parents was essential. He had tried it in several instances with good results.

Professor Dawson, in reply, said that there was scarcely anything to add. They must realize the enormous suggestibility of the child and, having excluded the physical factor, look to environment; the parental factor was most important. In cases that could not be handled by the general practitioner, recourse should be had to child guidance clinics, where much useful work was carried out by social workers, which it was impossible for medical practitioners to do.

Dr. Campbell thanked the meeting for their apparently attentive hearing. He had not touched upon aetiology. He did think, with Dr. Hughes, that an exhausting illness of any kind was an important aetiological factor, and Dr. McGeorge's remarks regarding hysteria were of interest. The environmental factor played a great part in the production of neuroses.

Dr. Campbell wished to correct an inadvertent misstatement of Dr. Hughes that habit spasm and chorea were easily confused. Habit spasm was easily diagnosed; but the fidgety child whose movements were general could be confused with a choreic. In the fidgety child the condition went on for a long time, while in chorea it cleared up quickly. There was something in the general make-up of the fidgety child that enabled one to see something unmistakable in him.

Dr. A. HOLMES A COURT expressed his personal appreciation of the admirable papers. His only regret was that the attendance was incommensurate with the value of the contributions. Perhaps it was because the subject was technical and would appeal to the technical mind; at the same time it was of the greatest value to the family practitioner.

In regard to the difficulty of the treatment of stammering, it was a regrettable fact that the profession was not better equipped to deal with it. This affliction was too often neglected and left to unauthorized practitioners.

In regard to chorea, isolation and sedatives had been referred to as the chief sheet anchors. He was surprised because so many seemed to respond to intravenously injected arsenic with the removal of the septic focus.

In conclusion, Dr. Holmes A Court thanked the speakers on behalf of the Association.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION WAS held at the Melbourne Hospital on May 17, 1933. The meeting took the form of a series of clinical demonstrations by the members of the honorary staff. The first part of this report appeared in the issue of October 14, 1933.

#### Compression Fractures of the Vertebrae.

Dr. VICTOR HURLEY showed a male patient, aged nineteen years, who was admitted to hospital on March 5, 1933, having lost control of a glider at a height of about twenty feet; the glider nose-dived to the ground. Portion of the seat penetrated his buttock. The patient was not unconscious at any time.

On admission he was moderately shocked and had a systolic blood pressure of eighty-five millimetres of

mercury. There was a lacerated wound of the buttock, involving the anus, and a fracture of the seventh right rib posteriorly. There was a good deal of pain in the lumbar region and local tenderness on percussion over the upper lumbar vertebrae. X ray films showed a "compression" fracture of the first lumbar vertebra with collapse on its left side. There was also wedging of the left side of the second lumbar vertebra. X ray films of the skull showed no fracture.

The patient was treated in the recumbent position with the head low and a pillow under the lumbar region to maintain the extended position of his lumbar spine until his wound had healed.

On March 28, 1933, he was placed in a Watson-Jones plaster jacket with the spine hyperextended, and this he was still wearing.

Dr. Hurley also read notes and showed films of another patient treated last year for a severe compression fracture of the bodies of the twelfth thoracic and first lumbar vertebrae with lateral subluxation of the latter. Fractures of the transverse process were also present. This patient had been similarly treated, and although there was marked kyphosis and lateral displacement at the site of injury on March 19, 1932, X ray films and clinical examination on June 22, 1932, showed "remarkable improvement in alignment, no kyphosis, and only very slight deformity of the body of twelfth thoracic vertebra in lateral view".

Dr. Hurley discussed the causation and principles of treatment of these fractures and drew attention to the greatly improved results by treatment in plaster of Paris in extension after the first few days.

#### Perinephric Abscess.

Dr. Hurley also showed a male patient, aged twenty-six years, who was admitted to hospital on April 28, 1933, with a history of pain in the right loin for fourteen days. The pain was deeply seated, continuous, and like toothache. The pain did not radiate. There was no vomiting. Some frequency of micturition was present for a few days, but there was no scalding.

On examination the patient's temperature was 38.5° C. (101.4° F.) and his pulse rate was 116. The abdominal muscles moved well. Marked tenderness was present in the right loin, with muscular rigidity and slight fullness. The leucocytes numbered 20,000 per cubic millimetre. The urine contained a few pus cells. There was a scar of an old incision over the left kidney, made five years ago.

The patient gave a history of having boils on the arms and neck three weeks ago. In 1928 he had a precisely similar occurrence of boils on the forearms, followed three weeks later by pain in the left loin with a rise of temperature, a leucocytosis, and evidence of infection in the region of the left kidney. At operation a left perinephric abscess was opened and drained.

Operation was performed on May 1, 1933. The right kidney was exposed and an indurated mass occupying the perinephric tissues was opened into and thick pus was obtained, which on culture grew a hemolytic *Staphylococcus aureus*.

The temperature subsided after a few days, and convalescence was interrupted by a mild pleurisy which developed on the eleventh day.

The causation of perinephric abscesses was discussed, with the nature of their origin and the slight or absent evidence of accompanying renal infection. Dr. Hurley pointed out that the causative organism was very often a *Staphylococcus aureus* and the primary focus some skin infection or wound, but particularly boils, carbuncles *et cetera*. The diagnosis was frequently overlooked.

#### Cardiospasm.

Dr. Hurley also showed a male patient, a gardener, aged thirty-one years, who was quite well until three years ago, when he noticed he regurgitated water, but not other fluids at first. Later, other fluids were regurgitated. About nine months later he thought he vomited solid food; there was no accompanying nausea. He continued to regurgitate water whenever taken, and solid foods occasionally, with intervals up to three weeks.

Rather more than two years ago (February 10, 1931) he first attended the out-patient department and was under the care of Dr. Scantlebury. Oesophagoscopy and X ray examination revealed an obstruction at the lower end of the oesophagus, which was grossly dilated above the obstruction. The appearances were characteristic of cardiospasm. Periodical dilatations were carried out for more than a year at steadily shorter intervals, with some relief at first, but later with less relief although dilatations were carried out every week. The patient steadily lost weight from 82.2 kilograms (thirteen stone seven pounds) to 64.8 kilograms (ten stone four pounds).

In view of this he was referred for opinion as to whether Mickulicz's operation of digital retrograde dilatation through an opening in the stomach should be carried out.

Operation was advised and performed on March 10, 1933. The narrowed lower end of the oesophagus was dilated till four fingers could be inserted through the narrowed area. These procedures were greatly assisted by the passage of a bougie *via* the mouth, through which the oesophageal contents were washed out and the cardiac opening of the oesophagus located.

The after-treatment and feeding were as for any other stomach operation. The wound healed cleanly and the patient was discharged on the sixteenth day. In the eight weeks which had elapsed since operation the patient had regained the 18.9 kilograms (three stone) in weight which he had lost, and on May 11, 1933, was 82.1 kilograms (thirteen stone six pounds) in weight and able to take a normal diet which had not been possible before operation.

#### Ewing's Sarcoma.

Dr. Hurley's last patient was a young woman, aged eighteen years, who sought advice in December, 1933, for a swelling of the left humerus which had been present for one month. Section of the growth revealed a small-celled sarcoma. The X ray appearances were those of Ewing's sarcoma. The Wassermann test gave no reaction. Deep therapy was given twice, the interval between the applications being three months. Dr. Hurley pointed out that X ray examination revealed much regeneration of bone.

#### Chronic Inflammatory Mass Around the Pyloric Antrum.

Dr. W. E. A. HUGHES JONES showed a married woman, aged twenty-one years, who had enjoyed good health until one week before admission to hospital, at which time acute epigastric pain and vomiting began suddenly. At the time of admission a mass was found resembling in all respects a distended gall-bladder, and the diagnosis seemed to be that of a stone in the cystic duct. The findings at operation were a great surprise, for the gall-bladder was normal and the pylorus was involved in a smooth mass which could not be encircled by the index finger and thumb and which seemed to be due to an acute cellulitis. The regional glands were acutely inflamed. A gland was taken for examination and the abdomen was closed. No neoplastic cells were found in the gland.

Two diagnoses suggested themselves: (a) an acute phlegmonous gastritis, and (b) an acute cellulitis due to bacterial invasion of an ulcer, possibly neoplastic. Four days after operation the pain and vomiting ceased and the patient felt well. A test meal showed that free hydrochloric acid was present and that there was no blood and no lactic acid. A barium meal revealed filling defect on the greater curvature immediately below the pylorus. Three weeks after the original operation a mass still could be detected beneath the incision, and it was felt that a carcinoma was probably present and that it should be resected if possible.

At the second operation it was found that the mass had receded to a third of its former size, that the mucous surface was intact as far as could be ascertained by palpation, and that the tumour formed a very localized prominence outward from the gastric wall and not into the stomach. It seemed that a chronic inflammatory condition was present and that resection was unnecessary, so a wedge-shaped piece was removed for section and it was at once noticed that long, narrow diverticula, about

three millimetres (one-eighth of an inch) in diameter, ran directly outward through the mass towards the peritoneal surface. The pathologist reported that the section was "chronic inflammatory", spaces lined by normal epithelium being surrounded by young fibrous tissue.

It was suggested that the condition was parallel to that occurring in the sigmoid colon, and reference was made to the work of Meyer on diverticula and sequestration of epithelium in the outer coats of the stomach. An alternative interpretation was that an acute inflammation had supervened upon *gastritis glandularis proliferans*.

#### Traumatic Recto-Vesical Fistula.

Dr. Hughes Jones also showed a boy, aged fifteen years, who was a butcher and wore a sharpening steel at his side. He slipped on the floor, and as he fell the handle, or blunt end, of the steel entered the anus, tore through the anterior wall of the rectum and penetrated the bladder. The boy withdrew the steel. On admission to hospital blood and urine were escaping from the rectum and a little blood was passed by the urethra. An indwelling catheter was inserted through the urethra, a large de Pezzer catheter was passed through the anus, and shortly afterwards a left inguinal colostomy was made. Very frequent irrigations of the sigmoid colon and rectum were given through the colostomy.

During the first week the patient's temperature was usually 38.3° C. (101° F.), much pain was experienced and there was a steady loss of blood. Two-thirds of the urine drained through the urethral catheter and one-third through the rectum. After that time the temperature returned to normal, loss of blood ceased, except for one active secondary hemorrhage, and there was no pain.

Sigmoidoscopic examination at the time of the meeting, three and a half weeks after the accident, revealed that the rectum was completely healed, except for an area less than six millimetres (a quarter of an inch) in diameter, which, situated 7.5 centimetres (three inches) from the anus, probably represented the rectal end of the recto-vesical fistula. The same amount of urine was still escaping from the rectum and it was hoped that this would soon begin to diminish.

Comment was made upon the rapid development of tolerance of the presence of faecal material in the bladder, just as occurred in vesico-colic fistula following upon diverticulitis of the sigmoid colon.

#### Lesions Resembling Erythema Nodosum Involving the Breast.

Dr. Hughes Jones also showed a woman, aged fifty years, who had for six years noticed the sudden appearance of painful erythematous nodules on the shins, the deltoid region and the left breast. At the time of the meeting there were two lumps in the subcutaneous tissues of the left breast, which had begun just as those on the legs and were now beginning to regress.

(To be continued.)

#### NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Douglas, John Richard Steele, M.B., B.S., 1931 (Univ. Sydney), Newcastle Hospital, Newcastle.

The undermentioned has been elected a member of the Tasmanian Branch of the British Medical Association:

Hay, Arthur, M.B., B.S., 1929 (Univ. Melbourne), Scottsdale.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Boan, Alan Ernest, M.B., B.S., 1933 (Univ. Melbourne), Hamilton District Hospital, Hamilton.

Gowland, John Hudson, M.B., B.S., 1931 (Univ. Melbourne), 31, Sun Crescent, Sunshine, W.20.

## University Intelligence.

### JUBILEE OF THE SYDNEY MEDICAL SCHOOL.

THE jubilee of the Medical School of the University of Sydney was celebrated on September 29, 1933, in the Great Hall of the University. The Chancellor, Sir William Cullen, presided at the gathering, and he was accompanied by the Vice-Chancellor, Professor R. S. Wallace, the Dean of the Faculty of Medicine, Dr. C. Bickerton Blackburn, members of the Senate and members of the teaching staff. All the faculties of the University were represented and a great concourse of graduates had responded to the invitation of the Chancellor and Senate to be present. The proceedings were started by an organ recital by Mr. W. McKie, M.A., Mus.Bac., F.R.C.O., Organist of the City of Melbourne.

Sir William Cullen said that a right note had been struck by the organist on the recently renovated organ. He had attested to the dignity of learning and to joy at the attainment of a good jubilee. Fifty years might seem a long time to many of those present, but to him it did not seem so long a time. He had seen the Medical School in its infancy. His feelings were those of joy and gratitude at having seen the fashioning of an instrument that was of great benefit to the community. The period was long enough to enable the people of the State to test what could be done by native material. Sir William Cullen well remembered the coming of the late Thomas Anderson Stuart and his introduction by the late Professor Badham. The Medical School had had small beginnings, and under the generosity of benefactors had expanded and had justified all the interest taken in it. He congratulated the members of the staff, past and present, on the reputation acquired by the school.

Sir William Cullen referred to many of the names associated with the school and to some of its graduates who had left Australia to acquire reputations in the old world. He also said that the greater number of physicians and surgeons of the country were graduates of the school; they were distinguished not merely by their knowledge, but for their reputation and the esteem in which they were held. Discipline and insistence on hard work had had the results that might have been expected: earnestness and efficiency had been rewarded. The school had his best wishes for another successful fifty years and for the maintenance of the responsibilities imposed by education.

Dr. C. Bickerton Blackburn, the Dean of the Faculty of Medicine, in his opening remarks pointed out that fifty years ago every medical practitioner in New South Wales was a graduate of some university outside the State; today upwards of 90% of those practising in the State were graduates of the University of Sydney. There was no cause for complaint of this local industry.

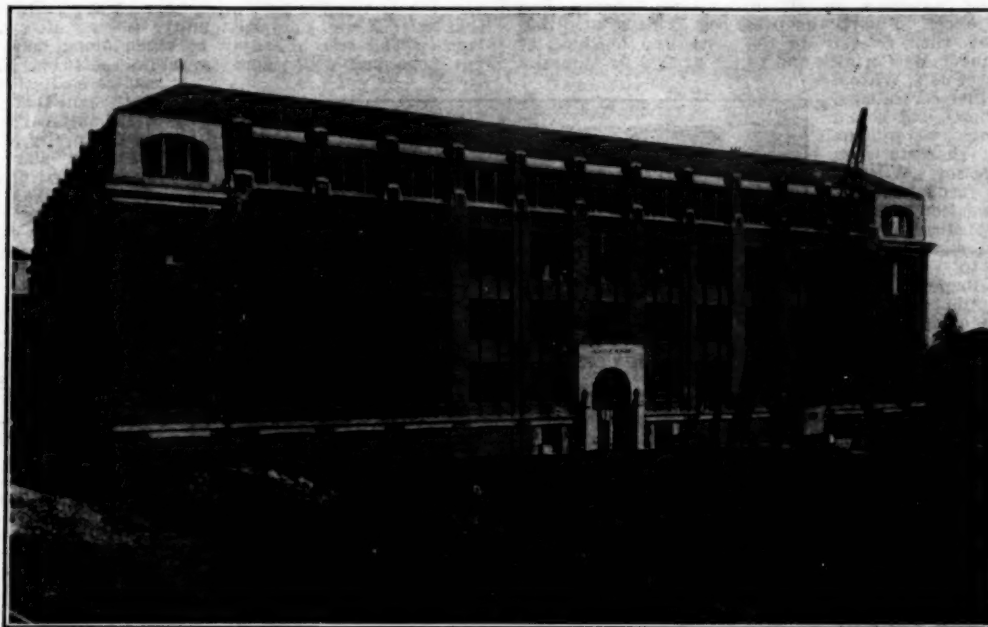
When they thought of the school at the occasion of its jubilee it was fitting that they should traverse its history and pay homage to the men who had created it and had brought it to its state of efficiency. The early history of the school was one of caution. When the University was founded in 1850 it was expressly laid down that one of its functions should be the teaching of medical students and the granting of degrees in medicine. It was not, however, until thirty-three years later that the Medical School came into being. Curiously, the delay was partly due to the medical profession, headed by the dean; there was a feeling that it would be impossible to educate medical students so far away from the educational centres of the old world. Dr. Blackburn then referred to the attempted assassination of the late Prince Alfred, afterwards Duke of Edinburgh, and to the fund that was started as a thanks offering for his safety. The sum of £30,000 was collected and it was decided that a hospital, The Prince Alfred Memorial Hospital, should be built. One of the objects of the establishment of this hospital was the teaching of medical students. The hospital was opened in 1880, but there was still no medical school. It was then that the Challis bequest was made to the University, and in 1882 money was granted by the Government of the day for the foundation of a medical school. A committee in the United Kingdom was asked to select



a suitable person to undertake the establishment of the school, and Thomas Peter Anderson Stuart was selected. Stuart was then twenty-seven years of age. The Sydney appointment offered him an outlet for his ambitions. Never were opportunity and the man better matched. He arrived in Sydney in 1883, to find his medical school a four-roomed cottage and himself its staff. There were many financial difficulties to be overcome, and Stuart overcame them by his importunities. The Medical School was an infant, in many quarters an unwanted infant, with a voracious appetite. Dr. Blackburn referred to the early friends of the young school—Normand MacLaurin, H. E. Barff, Phillip Sydney Jones—and then he described how Stuart had gathered together his staff. Alexander MacCormick was brought from Edinburgh to be the demonstrator in anatomy. Then Robert Scot Skirving came to Sydney to be second medical superintendent of the Prince Alfred Hospital. The staff also was strengthened by the cooption of medical men practising in the city of

Stuart's striking figure and his commanding personality; he was regarded with fear mingled with admiration. Behind his mask Stuart was a courteous, kindly gentleman, a wonderful host and a trusty friend. History would write his name as that of one of the great men who had helped the nation.

Dr. Blackburn then traced the changes in the personnel of the staff of the school and referred to the establishment of professorships in medicine, surgery, psychiatry and obstetrics. He pointed out that the school had lagged behind in the matter of medical research. Melbourne had had its Walter and Eliza Hall Institute of Research, and Adelaide a department for the study of animal nutrition. Research workers in Sydney had had to find some corner in one of the departments at the Medical School. It was then that G. H. Bosch came forward with his magnificent bequest for the establishment of full-time professorships in medicine and surgery and a professorship in bacteriology. Provision was made in the Bosch bequest



The New Rockefeller Building, University of Sydney.

Sydney. With his staff complete, Stuart set about building its home. Many people were pessimistic about the building that was planned, but Stuart had vision and built accordingly. In 1887 the first graduates passed their final examinations and were admitted to their degrees in 1888. Dr. Blackburn enumerated the first six graduates: W. G. Armstrong, Peter Bancroft, T. G. Davidson, A. G. Henry, A. S. Perkins, D. D. Rutledge. Since those days 2,293 graduates had passed through the school.

The new building was opened in 1890 and Stuart was happy. He ruled his house with a rod of iron. If he was hard on his students, he was equally hard on the members of his teaching staff and insisted that they should teach accurately. The school was a place for work and not for play. Dr. Blackburn then traced the development of the school and referred to the coming, first of Professor J. T. Wilson, and then of Professor D. A. Welsh. Then came the war. The graduates of the Medical School answered the call of their country and many made the supreme sacrifice. Dr. Blackburn said that while all mourned their loss, they gloried in the lustre added to the school. After the war the school resumed its normal activities, for there had been some disturbance of the curriculum to meet the exigencies of the war period. In 1920, however, Anderson Stuart died, and this marked the end of the first era of the school. Many would recall

for teaching and the direction of research. There was still no home for these departments until the Rockefeller Foundation came to the rescue and provided the sum of £100,000 for the erection of a building to house the departments of medicine, surgery and bacteriology. The depression, however, had affected the securities of the Bosch bequest and there was at present no foundation to pay for research. Dr. Blackburn appealed to those present to broadcast the need for such a foundation. He said that there were in the community many potential benefactors; they had to be found. He wanted them to be told that for every £300 they gave to the Medical School the University would devote a man to work for twelve months to find out some secret that might make their children and their children's children live healthier and happier lives.

At this stage the audience stood while the Sydney University Musical Society, under the conductorship of Mr. G. Faunce Alliman, sang the anthem "Let Us Now Praise Famous Men".

Dr. A. E. Mills then addressed the assembly. He referred to the early days of the Medical School. He thought that there was reason for jubilation, for the school had grown from its small beginnings and had become one of the largest in the British Empire. It was not size alone that made a school great; rather was it the character

and standard of work carried on in the school, and these again depended largely upon the teachers and on their knowledge of the subjects they professed and, on their powers to arouse and to maintain the interest and enthusiasm of their students in the subjects discussed.

Dr. Mills paid a tribute to the late Thomas Anderson Stuart. In many ways Stuart was a really remarkable man. He aroused the interest of his students from the moment a lecture began and maintained their interest throughout. He was a man of strong and dominating personality. He was a very far-seeing man, possessed of abundant energy and determination. Only such a man could have conceived the idea of building a great medical school of sufficient size to accommodate twenty times the number of students who were then studying medicine. Others could not see what to him was clear and distinct. To convert those of lesser faith, to overcome the opposition of those who could not see eye to eye with him, and to bring into reality his visions, required unbounded faith and enthusiasm in the righteousness of his cause, unswerving adhesion to it, indomitable energy and unflinching effort. Stuart was possessed of these qualities.

Dr. Mills then referred to the work and teaching of Dr. Alexander MacCormick and to the arrival in Australia

of Professor J. T. Wilson. He said that carefulness, thoroughness and sound judgement were the dominant characteristics of Professor Wilson's teaching throughout his long association with the Sydney Medical School. It was a striking testimony to Professor Wilson's inspiration and example that no less than six of his former students had been appointed to chairs of anatomy in the universities of the British Empire. Dr. Mills then referred to Sir Charles Martin and to Sir Almoth Wright and to their connexion with the school. He said that all those who had added lustre to the school were indefatigable workers—they exhibited enthusiasm such as was shown only by those who loved work for its own sake. So it was with all men who had attained real greatness, as well as with smaller men who had played their parts in the world with success. Dr. Mills concluded with the following:

Let us now praise famous men,  
Men of little showing,  
For their work continueth,  
And their work continueth,  
Broad and deep continueth,  
Greater than their knowing.

#### Opening of the New Medical Building.

The new medical building of the University of Sydney was officially opened by His Excellency, Air Vice-Marshal Sir Philip Woolcott Game, G.B.E., K.C.B., D.S.O., Governor of New South Wales and Visitor to the University, on September 28, 1933. The gathering was held in the lecture theatre of the new building. Sir William Cullen, the Chancellor of the University, presided. With him were the Vice-Chancellor, Professor R. S. Wallace, and the Dean of the Faculty of Medicine, Dr. C. Bickerton Blackburn. Mr. and Mrs. G. H. Bosch were amongst those present.

Sir William Cullen, in welcoming His Excellency the Governor, said that they all recognized him as a friend of all that made for the advancement of education in New South Wales. He recalled the fact that the late Professor

Badham, in welcoming the late Thomas Anderson Stuart fifty years previously, had predicted a successful future for the school; the prophecy had been abundantly fulfilled. He (Sir William Cullen) ventured to make the same prophecy in regard to the building that would be opened by Sir Philip Game that afternoon. He went on to say that the magnificent endowment of Mr. G. H. Bosch had made it possible to undertake research in medicine, but that there had been no place to house research workers. It was then that the Rockefeller Foundation became acquainted with the aspirations of the school. After some correspondence with Professor Wallace the Rockefeller Foundation undertook to put up the building at a cost of £100,000. Sir William Cullen hoped that it would fall to the lot of the school to share in the spectacular discoveries that astonished the world by their simplicity.

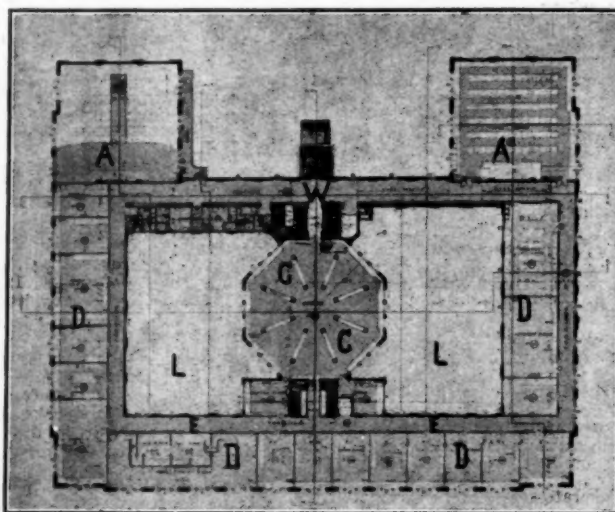
Sir Philip Game said that during the last three and a half years he had been honoured by many invitations to take part in functions in the cause of the advancement of science, but he thought that the invitation to open the new school was the greatest honour of them all. He said that science was one great unity, seeking after ultimate truth. The search had to be made along many roads, but none had done more to relieve suffering than the

road to medical research. He thought that progress in the medical school of the University of Sydney had been due to two causes. First of all, men of ideas had realized that knowledge could be increased only by systematic investigation and research and that medicine and science had to take their places as adequately equipped departments of the University. Secondly, men of action had been inspired by men of ideas; they had the means and the generosity to translate ideas into action. First and foremost among men of action was Mr. G. H. Bosch, who had given to the University the sum of £250,000 to found chairs in medicine, surgery and bacteriology. Mr. Bosch's philanthropy was of the

more valuable kind that impressed both the heart and the head. He had taken the trouble to inquire how the best use could be made of his gift before he made it. Mr. Bosch's gift had aroused the interest of a body that always looked before it leaped, and it was a tribute to the Medical School that it offered to provide the money for the erection of the new school. Sir Philip Game said that he hoped that the days of misunderstanding between the British Empire and the United States of America had passed for ever; if any misunderstanding existed, it was certainly not in the field of medical science.

Sir Philip Game then paid a tribute to the cooperation of the Directors of the Royal Prince Alfred Hospital in the erection of the new school. It was not on bricks and mortar that the ultimate success of the school would depend, but on human brains, human hands and human effort. It depended on the type of student and on the type of teaching that he received. Sir Philip Game reminded his audience that it was said of Eton School that it was old enough to have a tradition, but not old enough to live on it. In conclusion, he said that the magnificent gifts that the school had received were a responsibility as well as a tribute, and he felt sure that it had no intention of resting on its laurels. He then formally declared the school open.

Professor R. S. Wallace thought that it was his duty to express the sincere thanks of the Senate of the University



to many people who had helped to bring the plans to a success. Thanks had already been expressed to Mr. Bosch and to the Rockefeller Foundation. Professor Wallace mentioned first of all Dr. Sinclair Gillies, who had been a tower of strength both in help and advice. He also thanked Dr. C. Bickerton Blackburn, the Dean of the Faculty, and the members of the Faculty for their assistance. He said that it would have been impossible to have completed the details of the work without the help of those members of the staff who would have to work in the building. It would not be invidious if he mentioned particularly Professor Witherington Stump and Professor H. D. Wright; they had exercised a constant supervision over the work. Professor Wallace also thanked the Government Architect, the Directors of the Royal Prince Alfred Hospital, and last, but not least, the contractors, Messrs. Kell and Rigby.

After Sir William Cullen had thanked Sir Philip Game for attending and opening the building, the gathering dispersed and reassembled in the demonstration hall.

#### The Robert Gordon Craig Memorial Plaque.

Dr. C. B. Blackburn, before asking Mrs. Craig to unveil the memorial plaque to the memory of the late Robert Gordon Craig, referred to Craig's work and example. There were, he said, many reasons why the Faculty of Medicine had decided that Robert Gordon Craig, of all the two thousand graduates, should have his memory perpetuated. Craig had travelled by the arduous road of general practice and general surgery and had ultimately devoted himself to special work. He had realized that the road he trod gave the broadest view. He had realized that many problems in urology required solution and had founded the Fellowship in Urology by the gift of £20,000 to the University. Craig's portrait would be enshrined in the new building to act as an inspiration to future undergraduates to follow in his footsteps.

Mrs. Craig then unveiled the memorial plaque.

#### The Rockefeller Building.

The building has overall dimensions of about 200 feet by 160 feet, and is constructed in reinforced concrete faced with brick. It is so arranged that northern and western lighting are reduced to a minimum. The general layout is as indicated in the accompanying plan.

Two blocks of teaching laboratories and theatres are provided on the western front (A), towards the Royal Prince Alfred Hospital, with access from a corridor (W). This corridor gives access also to a central octagonal block (C), which can be approached, in addition, from the eastern corridor (E) and is flanked on either side by light courts (L). The main bulk of the building (D) is composed of research laboratories.

There are five floors in all. The basement, with the exception of a portion in the octagon, which houses the various services, has not been completed and is available for future extensions. The first and second floors will be occupied jointly by the Departments of Medicine and Surgery, which share a large demonstration hall on the first floor and a lecture theatre on the second floor communicating with the hospital.

On the third floor will be the Department of Pathology, with a practical classroom in the wing; on the fourth, the Departments of Obstetrics and of Bacteriology. In one wing on this floor is the theatre shared by these three departments, and in the other the classroom for students of bacteriology.

In the central octagon are the library, on a mezzanine floor above the first floor, the pathology museum on the third floor, and above this the animal house. Access to the museum and library is provided from the research block on the east side and from the students' corridor on the west.

## Correspondence.

### MEDICAL BENEVOLENCE.

SIR: The letters which have recently appeared in your journal from Dr. T. W. Lipscomb and Dr. J. C. Woods, calling attention to the financial position of the Medical Benevolent Association of New South Wales, call for some notice. There are only 152 annual subscribers and 96 life members. Interest from investments amounted to £73 1s. 9d. last year, while £389 16s. 2d. was paid to beneficiaries. This year a larger sum has been paid away, although our income is no larger. Last year there was a deficit of £102 17s. 10d. It is obvious that unless a considerable sum of money comes in before the end of the year, we shall have another deficit. It would be a tragedy if we were obliged to cut down the assistance we give our beneficiaries. Yet it is quite certain that we shall have to do so unless we can get more support. I may add that the clerical and office work of the Association is done on an honorary basis.

Subscriptions and donations should be sent to the Honorary Treasurer, Dr. E. S. Littlejohn, B.M.A. House, 135, Macquarie Street, Sydney, or to me.

Yours, etc.,

J. M. GILL,

Honorary Secretary.

175, Macquarie Street,  
Sydney,

September 20, 1933.

### HERPES RECURRENS.

SIR: I suggest the malady described in a letter headed "An Inquiry", by Dr. Boucaut, in THE MEDICAL JOURNAL OF AUSTRALIA of September 30, 1933, is *herpes recurrens*, of which Parkes Weber has written in London: it resembles *herpes zoster*, but is usually much milder and recurs very many times.

An old patient of mine, now in robust health, has had, in the last fifteen years, some twenty attacks, mostly less severe than that of Dr. Boucaut's hapless son, and another score of still milder attacks, all in the same place, the back of the left thigh, in the sensory distribution of the second sacral segment (*nervus cutaneus femoralis posterior*).

I regret to say I know no treatment except soothing protection.

Yours, etc.,

GUY GRIFFITHS, M.D.

131, Macquarie Street,  
Sydney,

September 29, 1933.

### USE OF IODINE IN THYREOTOXICOSIS.

SIR: I read with interest Dr. Poate's excellent article on the use of iodine in thyreotoxicosis in your issue of September 23, and I would like to endorse his remarks condemning large and comparatively large doses of iodine and the prolonged use of same as a general rule in toxic disorders of the gland.

As long ago as in 1924 Cowell and Mellanby condemned large iodine dosage in an article in *The Quarterly Journal of Medicine*, Number 69, October, 1924, and stressed the fact that when iodine is used in a case of thyreotoxicosis for any length of time it should be used only in small, even infinitesimal doses. They found they got their best results by giving small doses of potassium iodide, such as half a grain twice daily, and did not think larger doses should be used.

Professor Hercus again, at the Australasian Medical Congress in New Zealand stressed the point that the daily iodine requirement of the healthy glands was really very small and that excessive dosage may do great harm.



There is no doubt at all in my mind that the indiscriminate use of iodine in large and prolonged dosage will do great harm, not only in causing, in some cases, the condition known as iodine-hyperthyroidism, but also general constitutional disturbances; consequently, invaluable as the drug is in thyrotoxic conditions, it must be used judiciously and under careful supervision. I think most of us also agree, without wishing to detract from the importance and results of other methods of treatment under certain conditions, that surgery offers the best chances of a successful cure in the great majority of cases.

In the National Heart Hospital in London, where so many cases of cardiac conditions caused by thyrotoxic states are seen, the main treatment advocated for the past ten years, especially by Dr. Strickland Goodall, has been surgical treatment of the gland. I understand that a step further in this direction has been taken at this hospital, inasmuch as in those cases of auricular fibrillation, which is considered to be due to some thyrotoxic factor, but in which the gland is not apparently enlarged, removal of this is advocated with excellent results, and histological examination of the thyroid has shown that the course was fully justified.

Yours, etc.,

O. A. DIETHELM.

185, Macquarie Street,  
Sydney,  
September 26, 1933.

#### ANÆSTHESIA WITH PRENARCOSIS BY MORPHINE AND PARALDEHYDE.

SIR: In reply to the letter of Dr. Hanly in a recent number of this journal, in reference to an article by us on paraldehyde and morphine as a basal anæsthesia, we would state:

1. There is a definite fall of about 20 millimetres of mercury as unconsciousness appears and a further gradual fall for the first hour.

2. The method of preanæsthetic narcosis has been used chiefly on relatively short operations. We have not sufficient experience of more prolonged operations.

3. The depth of the basal narcosis should be adjusted to the necessities of the operation. It was necessary in most of these operations to retain active pharyngeal and laryngeal reflexes to prevent blood and discharges gaining access to the lungs *et cetera*. However, recently we have been omitting "hyoscine" and giving the usual dose of morphine with paraldehyde, half a drachm to the stone plus one drachm to replace the "hyoscine".

4. Paraldehyde is stated to be excreted by the alveolar epithelium. A few cases of bronchiectasis remained more deeply narcotized for eight to fourteen hours.

Yours, etc.,

BERNARD GARRETT.  
ERIC GUTTERIDGE.

12, Collins Street,  
Melbourne, C.I.,  
September 29, 1933.

#### THE LISTERIAN ORATION.

SIR: I would, through you, thank Dr. W. J. Stewart McKay for his interesting commentary on the oration I was privileged to deliver in Adelaide. But I would point out that the oration was in honour of Lister, not of Lawson Tait. One feels sure that if a munificent benefactor endowed an oration in honour of Lawson Tait, full honour would be done to the memory of so great a man.

Yours, etc.,

F. A. MAGUIRE.

193, Macquarie Street,  
Sydney,  
September 30, 1933.

#### THE FIRST HEART SOUND.

SIR: In the *Archives of Internal Medicine*, Volume LI, Number 5, May, 1933, there appears an article on the mode of production of the first heart sound by Dr. William Dock, of San Francisco.

In the course of an historical note Dr. Dock makes the following statement:

In 1851, G. B. Halford (*Lancet* 2: 593, 1851) first performed the experiment which demonstrated the absence of a muscular element in the first heart sound, with a technic not unlike that used in the experiments of this paper. Halford wrote: "The superior and inferior vena cava and the pulmonary veins at the entrance to the left auricle were tightly compressed between the fingers. The heart continuing its action, a stethoscope was again applied, and neither first nor second sound was heard." Halford's crucial experiment is not referred to by subsequent investigators, although others observed similar phenomena.

This article by Dr. Dock was the subject of an extended review in the "Current Comment" of your issue of September 2, but no mention whatever was made of the pioneer work which Dr. Dock rightly describes as crucial, and thus your contributor missed an opportunity of paying a deserved compliment to the founder of the first medical school in the Antipodes, the late Professor G. B. Halford, of Melbourne.

Dr. Dock, in his historical summary, omits a very important paper on the causation of the first sound, contributed to the *Journal of Physiology* (Volume VI, page 145, 1885) by Professor G. F. Yeo and Dr. (now Sir James) Barrett. These investigators repeated Halford's experiment, but with a superior stethoscope, and found that the musculature could make a definite contribution to the first sound, which Professor Halford, by using the old-fashioned stethoscope, had missed.

Yours, etc.,

W. A. OSBORNE.

The University of Melbourne,  
Melbourne,  
October 3, 1933.

#### SHALL THE TONSIL BE OUR TOTEM?

SIR: Tilting at the tonsillar totemists, however innocent the indulgence, appears to have aroused the resentment of their principal exponent, Dr. Sydney Pern, who, in your issue of September 23, roundly rebukes me for my satire and laments the waste of valuable space which my remarks occupied.

Alas, this metaphorical scourging with his totem-pole has not, I regret to state, served to convert me to his totemistic teachings; nor do I feel chastened by the citation of that kindly letter of acknowledgement from the Regius Professor of Physic. In fact, this pious epistle from so venerable a physician which Dr. Pern quotes with the approval appropriate to a patriarchal pat on the back, seems to have as little to do with the case under discussion as the "flowers that bloom in the spring". My remarks were not concerned with the incidence of low grade infection in the ætiology of gonorrhoea; but were expressly directed against the sweeping statement in which Dr. Pern claimed that 75% of all diseases—presumably from malaria to melancholia—were due to the streptococcus.

There can be no mistake about this. Dr. Pern is positive, if nothing else. He claims to speak the truth; and his attitude is: "Impugn it who so list." For him surgery seems to have lost its savour and medicine holds no mystery. But oh! these terrible tonsils; these hotbeds of spawning streptococci—how they haunt him! Three-quarters of our diseases present but a single problem: "*cherchez la tonsille!*" And, having found the infected tonsil—and are there any that are still virginal to the assault of the streptococci?—remove it. This, he says, "must be the chief line of treatment for at least 75% of the diseases that assail mankind". Surgery, it is true, is

of lowly origin; but because we started as barbers, is it necessary for us to finish as tonsil-snatchers?

"What is truth?" said jesting Pilate; and Dr. Pern has answered him. Truth is a solid rock with firm foundations. I regret I have never seen truth as anything so tangible. Diogenes believed that truth lay at the bottom of a well. The researches of modern man have so far only served to show that the well is bottomless. Personally, therefore, I prefer the agnosticism of Pontius Pilate to the positive dogmatism of Dr. Pern. I prefer to be buffeted about in the Mediterranean of modern medicine than to sit with the tonsillar totemists on the Gibraltar of truth.

Totemism is a primitive form of religion, and at the bottom of every religion there is faith. Faith is a blind belief, and it is surely this which has caused Dr. Pern to cling so tenaciously to his theory of human illness and made him so touchy about tonsils. Faith makes him blind to criticism and gives an apostolic savour to his utterances; for, despite the saying that: "on their own merits modest men are dumb", Dr. Pern claims to have written nothing in the past that has proved fallacious; and the future, he assures us, has more to reveal. Who knows what this may be? I tremble lest it be that he discovers that not only 75% but 100% of human illness is due to our old enemy the ubiquitous streptococcus.

For Faith, fanatic Faith, once wedded fast  
To some dear falsehood, hugs it to the last.

Yours, etc.,

REG. S. ELLERY.

14, Collins Street,  
Melbourne,  
October 8, 1933.

### Congress Notes.

#### AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

THE Joint Honorary Secretaries of the Fourth Session of the Australasian Medical Congress (British Medical Association), to be held at Hobart on January 15 to 20, 1934, wish to draw the attention of intending members to the fact that adequate first class accommodation is still available at Hobart. Full information regarding accommodation may be obtained from Dr. E. A. Rogers, 133, Macquarie Street, Hobart.

#### Travelling Facilities.

Attention is drawn to the following travelling facilities.

##### Railways.

Members travelling by any State or Commonwealth railways will be entitled to return tickets at single fares, plus one-third. This concession also applies to their wives. In Queensland and Western Australia, sons under the age of sixteen and unmarried daughters are also entitled to such reduced fares when accompanying the member. These concession tickets will be available to enable members to arrive in Hobart seven days before the inaugural meeting and to commence their return journey one month from the opening of Congress, that is, not later than February 15, 1934.

State Secretaries of Congress will be able to give members any information desired.

#### Amended Shipping Arrangements.

Members travelling by the Associated Steamship Owners' ships, that is, the Union Steamship Company, Huddart Parker, Limited, Australasian United Steam Navigation Company, Limited, Melbourne Steamship Company, Limited, Adelaide Steamship Company, Limited, and McIlwraith McEachern, Limited, will be allowed a concession of 10% off their fares. This also applies to their wives.

The S.S. *Zealandia* sails from Sydney to Hobart, January 3 and 10, 1934; from Hobart to Sydney, January

20 and 27, and February 3. Fare, £8 10s. return, less 10%.

R.M.S. *Cathay* leaves Brisbane, January 3; Sydney, January 11; arrives Hobart, January 13.

S.S. *Tanda* leaves Melbourne and arrives Hobart, January 4. Fare, £4 single.

S.S. *Moreton Bay* leaves Hobart for Melbourne, Saturday, January 20. Fare, £3 and £3 15s.

T.S.S. *Nairana* leaves Melbourne for Launceston, January 8, 10 and 12; leaves Launceston for Melbourne, January 20, 23, 25 and 27. Fare, £5 return, less 10%.

T.S.S. *Loongana* leaves Melbourne for Burnie, January 9 and 12; leaves Burnie for Melbourne, January 24 and 27. Fare, £5 return, less 10%.

Motor cars will be available and a train service will run direct to Hobart from the *Nairana* on arrival. Reservations should be made through the local tourist bureaux. Train fare, £1 16s. 8d., Launceston to Hobart and return.

#### Aerial Service to Launceston and Hobart.

Hart Aircraft Services Proprietary, Limited.—Melbourne to Launceston, Mondays and Thursdays.

Tasmanian Aircraft Service.—Melbourne to Launceston, Mondays, Wednesdays and Fridays. Fares, single £5, return £9 10s.

### Obituary.

#### ROBERT JOHN FULLERTON.

WE regret to announce the death of Dr. Robert John Fullerton, which occurred on October 9, 1933, at Reservoir, Victoria.

### New Medicaments, Apparatus, etc.

In this section attention of readers will be directed to new medicaments, apparatus et cetera referred to in THE MEDICAL JOURNAL OF AUSTRALIA ADVERTISER.

#### THE PERCIVAL "GULL" AEROPLANE.

In this issue there appears an advertisement of the Percival "Gull" aeroplane. The Percival "Gull" is the latest in fast, economical aircraft. It takes its name from the designer, Captain Edgar Percival, an Australian, and is of the low-wing monoplane type. The wing span is only thirty-six feet, but there is ample room in the cabin for two passengers, in addition to the pilot, and each may carry twenty pounds of luggage.

Should it be found necessary to transport a patient in the aeroplane, the cabin may be adapted in a very short space of time to carry the patient on a stretcher, in addition to the other passenger and pilot.

With 21 gallons of fuel in each wing and four gallons of lubricating oil in the left wing, the "Gull" can keep the air for seven hours, at a speed of 125 miles an hour—the cruising speed at 1,980 revolutions of the Gipsy Major engine, which is rated at 130 horse-power. The undercarriage is exceptionally strong, and the balloon-tired wheels are fitted with independent Palmer hydraulic brakes. Originally imported by Mr. Donald Mackay for use as the survey aeroplane of his 1933 expedition, the aeroplane has run consistently for three months, always piloted by Captain Frank Neale, without any trouble. In that time the "Gull" has been in the air 290 hours and travelled a distance of 31,300 ground miles. This is claimed to be a record for any machine flown in Australia, and is most certainly a remarkable performance for an aircraft, which, fully loaded, weighs just under one ton.

The aeroplane has proved to be eminently suited for fast cross-country, long-distance taxi work, and can be relied on by medical practitioners to "get there" in any weather.

## Books Received.

RECENT PROGRESS IN MEDICINE AND SURGERY, 1919-1933, by Various Authors, edited by Sir John Collie, C.M.G., M.D.; 1933. London: H. K. Lewis. Demy 8vo., pp. 380, with 38 illustrations. Price: 16s. net.

ACTINOTHERAPY TECHNIQUE: AN OUTLINE OF INDICATIONS AND METHODS FOR THE USE OF MODERN LIGHT THERAPY, with foreword by Sir Henry Gauvain, M.D., M.Chir., F.R.C.S.; 1933. Slough: The Sollux Publishing Company; Sydney: W. Watson and Sons, Limited. Crown 8vo., pp. 134. Price: 6s. net.

CUTANEOUS NEOPLASMS, by N. Paul, M.B., Ch.M.; 1933. London: H. K. Lewis and Company, Limited. Demy 8vo., pp. 168, with 62 illustrations. Price: 10s. 6d. net.

## Diary for the Month.

- OCT. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 OCT. 25.—Victorian Branch, B.M.A.: Council.  
 OCT. 26.—South Australian Branch, B.M.A.: Branch.  
 OCT. 26.—New South Wales Branch, B.M.A.: Branch.  
 OCT. 27.—Queensland Branch, B.M.A.: Council.  
 NOV. 1.—Western Australian Branch, B.M.A.: Council.  
 NOV. 2.—South Australian Branch, B.M.A.: Council.  
 NOV. 3.—Queensland Branch, B.M.A.: Branch.  
 NOV. 6.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
 NOV. 10.—Queensland Branch, B.M.A.: Council.  
 NOV. 14.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
 NOV. 15.—Western Australian Branch, B.M.A.: Branch.  
 NOV. 21.—New South Wales Branch, B.M.A.: Ethics Committee.

## Medical Appointments.

Dr. F. J. Ryan (B.M.A.) has been appointed Junior Medical Officer, Parkside Mental Hospital, South Australia.

Dr. Brooke Moore (B.M.A.) has been appointed Visiting Surgeon to the Bathurst Gaol, New South Wales; also, in pursuance of the provisions of the *Prisoners' Detention Act*, 1908, as Medical Officer-in-Charge of the Lock Hospital at that gaol.

Dr. J. Brooke Moore (B.M.A.) has been appointed Honorary Assistant Visiting Surgeon to Bathurst Gaol, New South Wales.

Dr. A. S. Thomas (B.M.A.) has been appointed a Certifying Medical Practitioner at Bentleigh, Victoria, pursuant to the provisions of the *Workers' Compensation Act*, 1928.

Dr. T. G. C. Retallick (B.M.A.) has been appointed Acting Medical Superintendent of the Hospital for the Insane, Beechworth, Victoria, pursuant to the provisions of the *Lunacy Act*, 1928.

## Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xvi and xvii.

- CAMOOWEAL HOSPITAL, CAMOOWEAL, QUEENSLAND: Medical Officer.  
 CHILDREN'S HOSPITAL (INCORPORATED), PERTH, WESTERN AUSTRALIA: Junior Resident Medical Officers.  
 HOBART PUBLIC HOSPITAL, HOBART, TASMANIA: Junior Resident Medical Officers.  
 PARRAMATTA DISTRICT HOSPITAL, PARRAMATTA, NEW SOUTH WALES: Junior Resident Medical Officer.  
 PERTH HOSPITAL, PERTH, WESTERN AUSTRALIA: Resident Medical Officers.  
 REPATRIATION COMMISSION, SYDNEY, NEW SOUTH WALES: Resident Medical Officer.  
 UNIVERSITY OF LONDON, ENGLAND: The Sir William Dunn Chair of Pathology, Guy's Hospital.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

| BRANCH.  | APPOINTMENTS.   |
|--|---|
| NEW SOUTH WALES:<br>Honorary Secretary,<br>135, Macquarie Street,<br>Sydney. | Australian Natives' Association.<br>Ashfield and District United Friendly Societies' Dispensary.<br>Balmain United Friendly Societies' Dispensary.<br>Friendly Society Lodges at Casino.<br>Leichhardt and Petersham United Friendly Societies' Dispensary.<br>Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney.<br>North Sydney Friendly Societies' Dispensary Limited.<br>People's Prudential Assurance Company Limited.<br>Phoenix Mutual Provident Society. |
|  | All Institutes or Medical Dispensaries.<br>Australian Prudential Association, Proprietary, Limited.<br>Mutual National Provident Club.<br>National Provident Association.<br>Hospital or other appointments outside Victoria.   |
| VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.         | Brisbane Associated Friendly Societies' Medical Institute.<br>Chillagoe Hospital.<br>Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing.<br>Lower Burdekin District Hospital, Ayr.   |
| QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.  | Combined Friendly Societies, Clarendon and Kangarilla districts.<br>All Lodge Appointments in South Australia.<br>All Contract Practice Appointments in South Australia.  |
| SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.                   | All Contract Practice Appointments in Western Australia.  |
| WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.   | Friendly Society Lodges, Wellington, New Zealand.   |
| NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.           |   |

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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